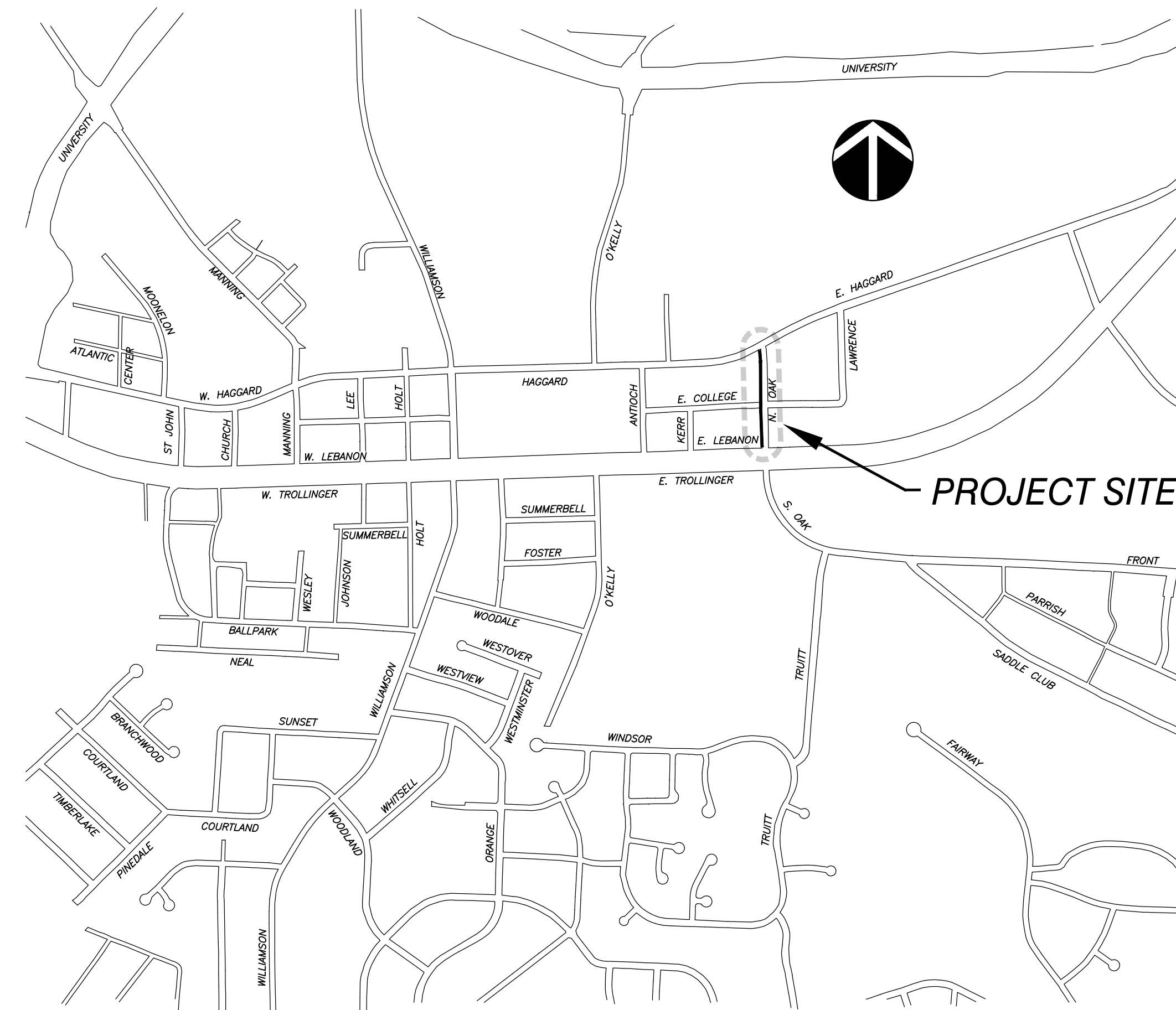


TOWN OF ELON NORTH OAK AVENUE STREET & SIDEWALK IMPROVEMENTS

ALAMANCE COUNTY, ELON, NORTH CAROLINA
NCDOT PROJECT NO. : 43830



VICINITY MAP
NOT TO SCALE

OWNER
TOWN OF ELON

104 SOUTH WILLIAMSON AVENUE
ELON, NORTH CAROLINA 27244
TELEPHONE : (336) 584-0282

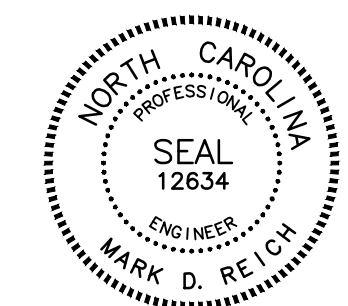
TOWN MANAGER : RICHARD J. WHITE, III
TOWN ATTORNEY: JOSEPH K. KALO
TOWN CLERK: DIANNE ENOCH

ALLEY, WILLIAMS, CARMEN, & KING, INC.
ENGINEERS & ARCHITECTS
740 CHAPEL HILL ROAD
BURLINGTON, NORTH CAROLINA 27215
TELEPHONE: 336-226-5534

FIRM'S ENGINEERING LICENSE NO. F-0203

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- SHEET 4 OF 14 - N. OAK AVENUE STREET & SIDEWALK IMPROVEMENTS (SHEET 2)
- SHEET 5 OF 14 - N. OAK AVENUE STREET & SIDEWALK IMPROVEMENTS (SHEET 3)
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- SHEET 8 OF 14 - N. OAK AVENUE STREET CROSS SECTIONS
- SHEET 9 OF 14 - CONSTRUCTION DETAILS
- SHEET 10 OF 14 - CONSTRUCTION DETAILS
- SHEET 11 OF 14 - EROSION CONTROL DETAILS
- SHEET 12 OF 14 - TRAFFIC CONTROL PLAN
- SHEET 13 OF 14 - TRAFFIC DETAILS
- SHEET 14 OF 14 - TRAFFIC & CONSTRUCTION DETAILS



DocuSigned by
Mark D. Reich
58637F048A08407

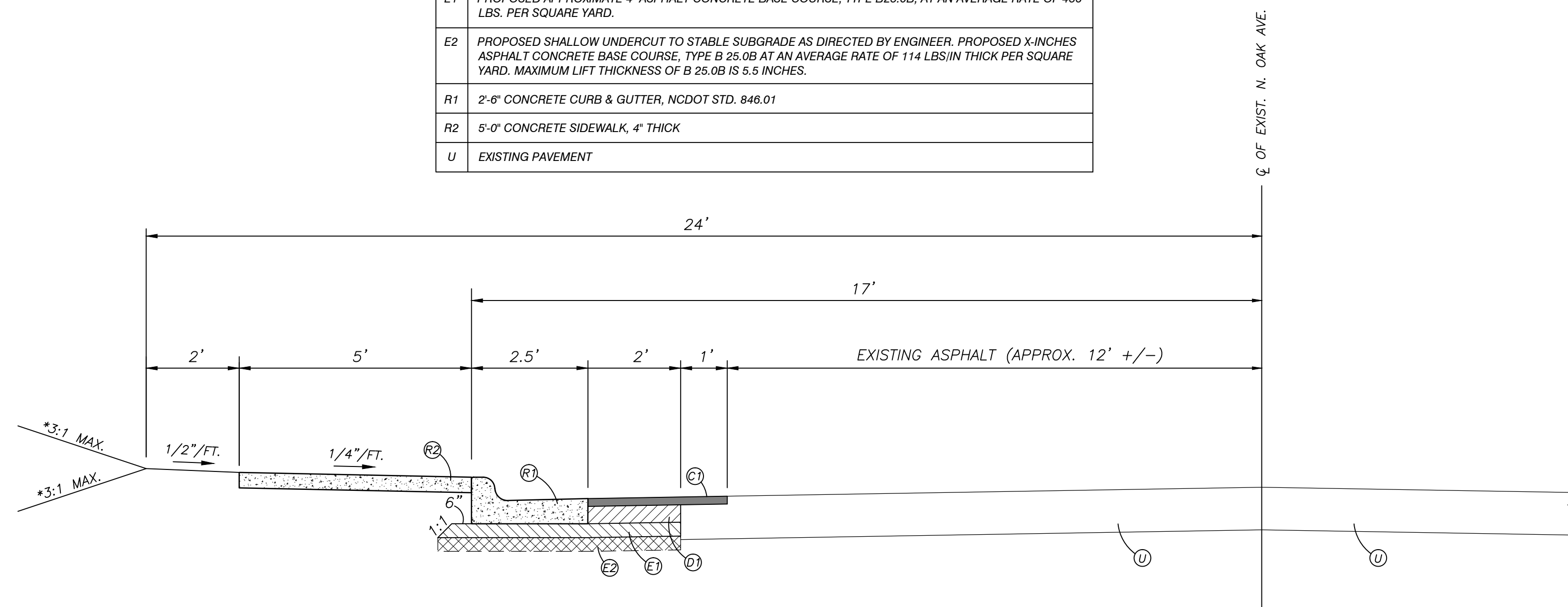
4/21/2015

JOB NO. 12158

REVISED : 5/01/14 - NCDOT COMMENTS
REVISED : 4/16/15 - RELEASED FOR CONSTRUCTION

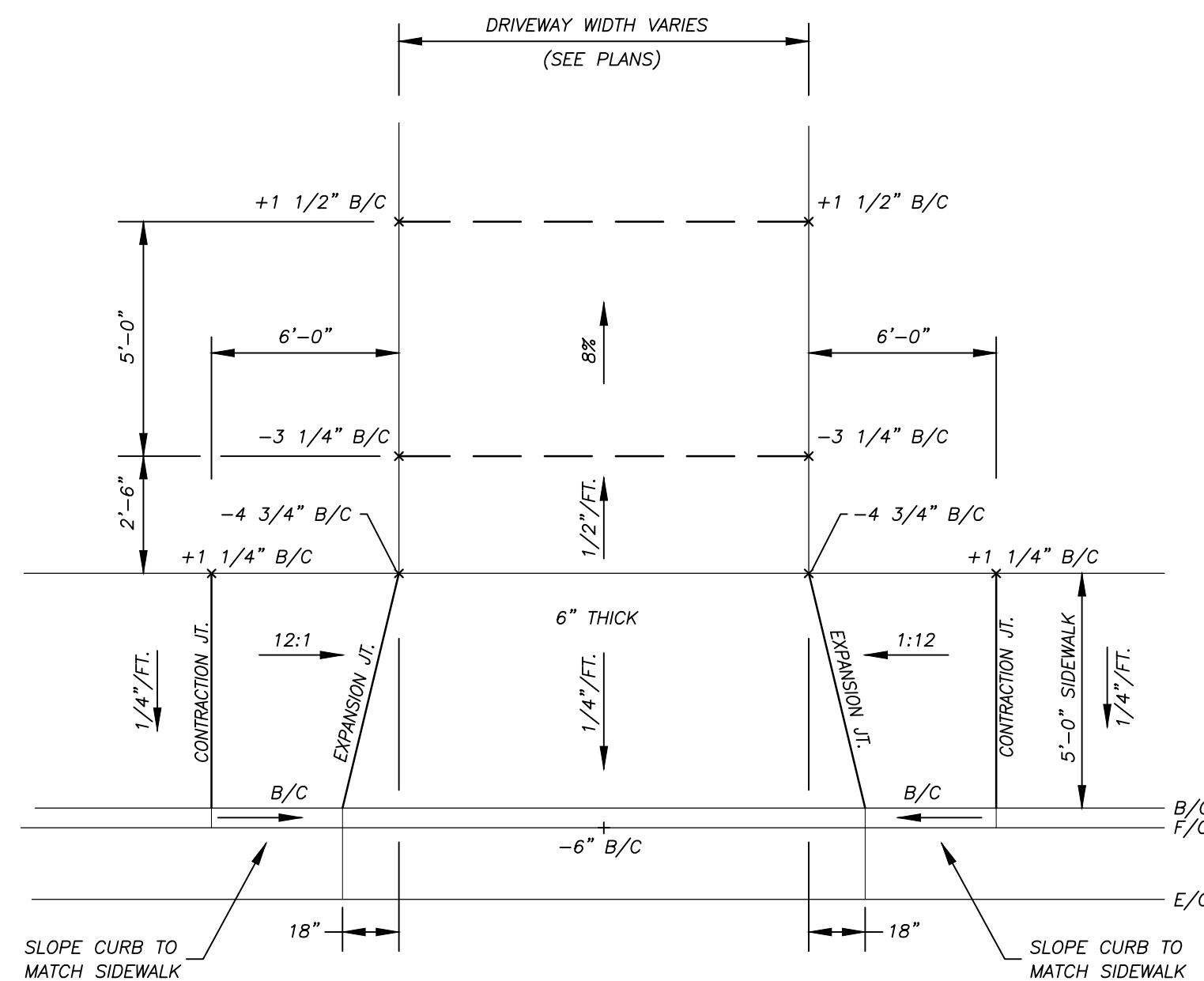
DATE: FEBRUARY 20, 2014

PAVEMENT SCHEDULE	
C1	PROPOSED APPROXIMATE 1.5" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 168 LBS. PER SQUARE YARD IN EACH OF TWO LAYERS.
D1	PROPOSED APPROXIMATE 4" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I 19.0 B, AT AN AVERAGE RATE OF 456 LBS. PER SQUARE YARD.
E1	PROPOSED APPROXIMATE 4" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 456 LBS. PER SQUARE YARD.
E2	PROPOSED SHALLOW UNDERCUT TO STABLE SUBGRADE AS DIRECTED BY ENGINEER. PROPOSED X-INCHES ASPHALT CONCRETE BASE COURSE, TYPE B 25.0B AT AN AVERAGE RATE OF 114 LBS/IN THICK PER SQUARE YARD. MAXIMUM LIFT THICKNESS OF B 25.0B IS 5.5 INCHES.
R1	2'-6" CONCRETE CURB & GUTTER, NCDOT STD. 846.01
R2	5'-0" CONCRETE SIDEWALK, 4" THICK
U	EXISTING PAVEMENT

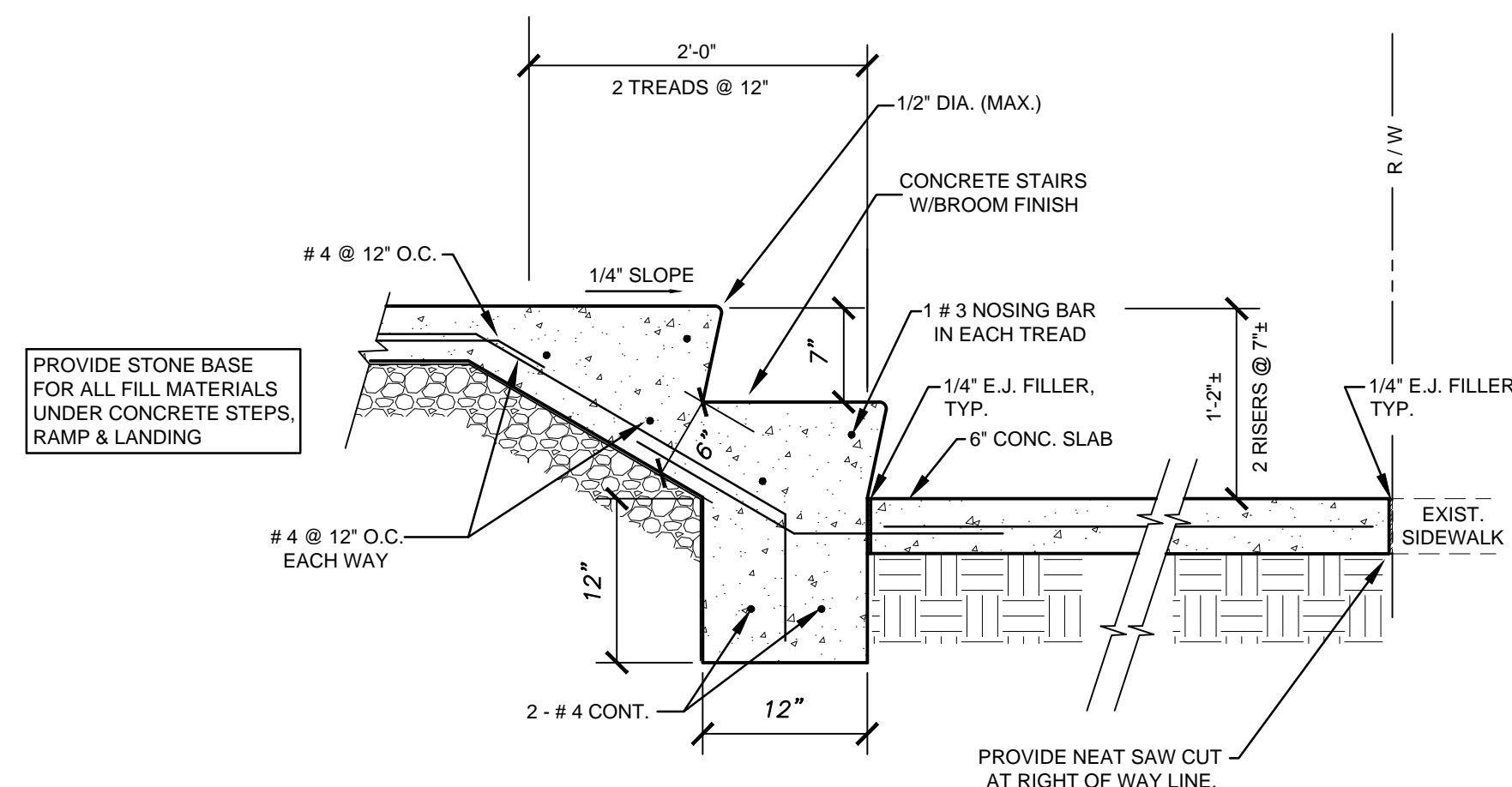


TYPICAL SECTION - NORTH OAK AVENUE
N.T.S.

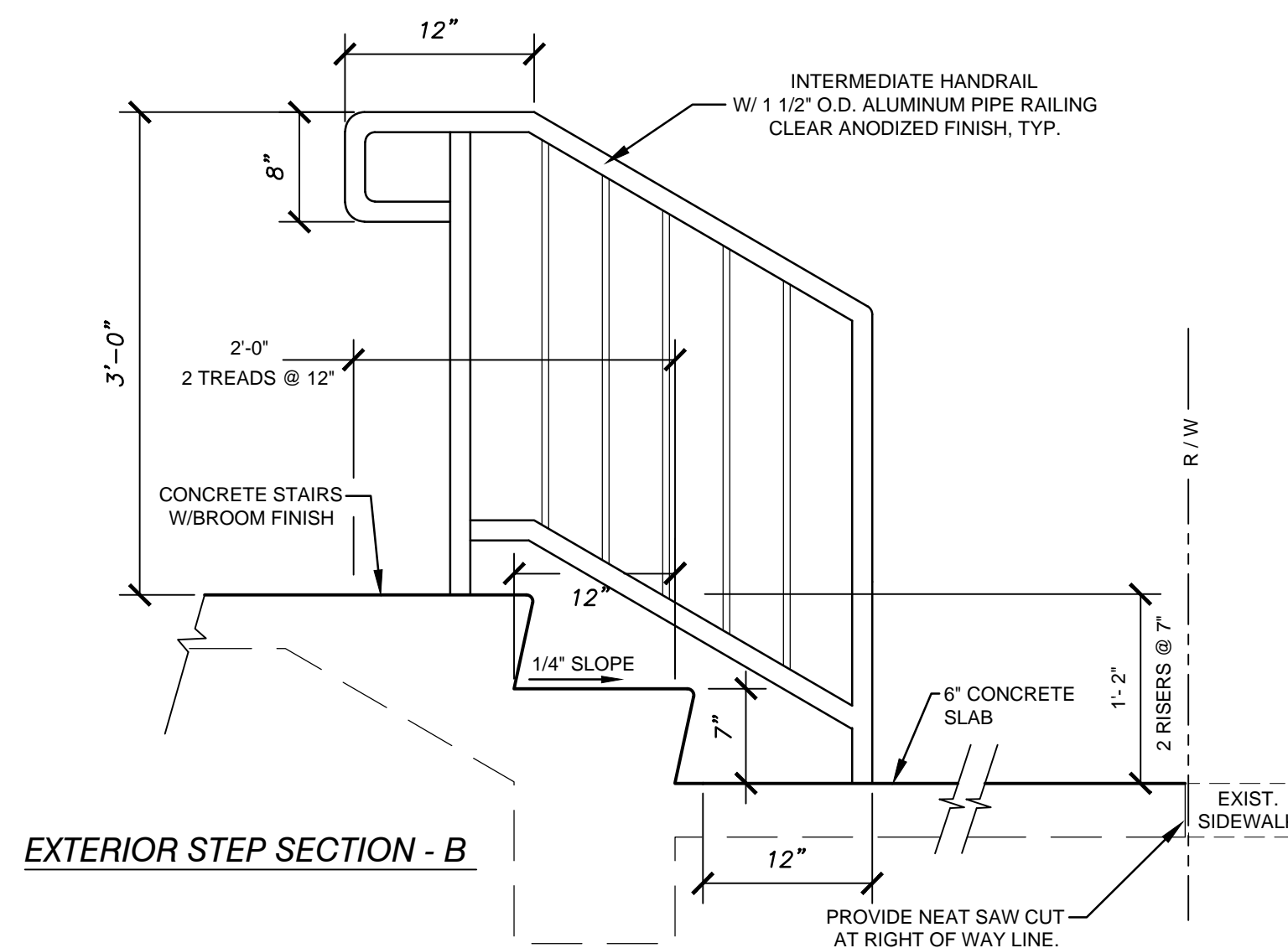
* SEE GRADING NOTE ON SHEET 3
MODIFYING BERM WIDTH AND SLOPE.



TYPICAL DRIVEWAY DETAIL



EXTERIOR STEP SECTION - A



EXTERIOR STEP SECTION - B

[illegible]

STORM SEWER CHART																			
Structure # Up	Structure # Down	Drainage Area (ac)	Total Area (ac)	Runoff Coeff (C)	Tc (min)	I 25 (in/hr)	Incr Q (cfs)	Flow Rate (cfs)	Capacity Full (cfs)	Pipe Size (in)	Pipe Length (ft)	Pipe Slope (%)	Velocity Avg (ft/s)	Invert Up (ft)	Invert Down (ft)	Rim Elev Up (ft)	Rim Elev Down (ft)	HGL Up (ft)	HGL Down (ft)
PE #10	JMH #9	0.87	0.87	0.30	10.0	6.24	1.63	1.63	20.42	15	9.00	10.00	2.39	688.00	687.10	N/A	691.00	688.51	688.45
EX CI	JMH #9	4.00	4.00	0.65	10.0	6.24	16.22	16.22	25.39	18	118.00	5.85	9.51	694.00	687.10	697.46	691.00	695.43	688.45
JMH #9	CB #1	0.00	4.87	0.00	10.2	6.19	0.00	17.71	21.44	18	12.00	4.17	10.53	687.00	686.50	691.00	690.98	688.45	687.79
CB #8	DI #7	0.44	0.44	0.45	10.0	6.24	1.24	1.24	5.16	15	39.19	0.64	2.91	698.50	698.25	701.65	700.50	698.94	698.75
DI #7	DI #6	0.39	0.83	0.45	10.6	6.10	1.09	2.28	12.30	15	31.68	3.63	4.10	698.15	697.00	700.50	699.50	698.75	697.56
DI #6	CB #5	0.11	0.94	0.65	10.9	6.04	0.45	2.69	9.06	15	40.66	1.97	4.51	696.90	697.00	699.50	699.45	697.56	696.67
CB #5	CB #4	0.03	0.97	0.90	11.2	5.98	0.17	2.82	11.72	15	63.76	3.29	4.99	696.00	693.90	699.45	697.30	696.67	694.42
CB #4	CB #3	0.36	1.33	0.45	11.7	5.89	1.01	3.73	12.12	15	80.96	3.52	4.49	693.65	690.80	697.30	694.67	694.42	691.64
CB #3	CB #2	0.68	2.01	0.45	12.1	5.81	1.91	5.46	9.61	15	126.40	2.22	5.62	690.70	687.90	694.67	691.00	691.64	688.83
DDI#2A	CB #2	0.73	0.73	0.60	10.0	6.24	2.73	2.73	7.22	15	16.00	1.25	3.47	688.10	688.50	VARIABLE	691.41	688.86	688.83
CB #2	CB #1	0.40	1.14	0.60	12.6	5.72	4.23	9.26	14.53	18	60.08	1.91	6.01	687.65	686.90	691.41	690.98	688.83	687.79
CB #1	EX PO	0.16	8.17	0.70	12.8	5.69	0.70	26.12	45.65	24	36.82	4.07	8.80	686.00	684.50	690.98	N/A	687.79	686.26

PIPE REMOVAL SUMMARY				
STATION	LOCATION	LENGTH	SIZE	REMARKS
4+25	18' LT.	44'	15" RCP	REMOVE PIPE
5+47	19' LT.	20.4'	15" RCP	REMOVE DRIVEWAY PIPE
7+14	17' LT.	48.3'	18" RCP	REMOVE DRIVEWAY PIPE
7+99	15' LT.	4.4'	24" RCP	REMOVE EXIST 24" RCP TO CONSTRUCT PROP CB
8+02	22' LT.	6.1'	18" HDPE	REMOVE EXIST 18" HDPE TO CONSTRUCT PROP JMH





GENERAL NOTES :

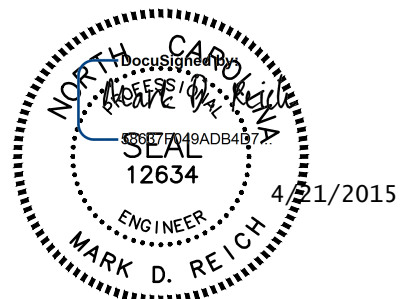
1. ALL STREET, RAILROAD AND REGULATORY SIGNS LOCATED WITHIN PROPOSED CONCRETE SIDEWALK FOOTPRINT SHALL BE RELOCATED AS DIRECTED BY THE ENGINEER. ALL REGULATORY SIGNS (INCLUDING RAILROAD) SHALL BE MAINTAINED AT ALL TIMES USING TEMPORARY MEASURES AS APPROVED BY THE ENGINEER.
2. ALL FIRE HYDRANTS, WATER METERS, AND SANITARY SEWER CLEAN-OUTS SHALL BE ADJUSTED TO FINAL GRADE BY TOWN PERSONNEL. CONTRACTOR SHALL COORDINATE ALL WORK WITH TOWN OF ELON PUBLIC WORKS DEPARTMENT. CONTACT DON WAGGONER AT 336-584-9600.
3. CONTRACTOR SHALL REMOVE AND DISPOSE OF ALL TREES SHOWN TO BE REMOVED.

UTILITY LOCATION INFORMATION:

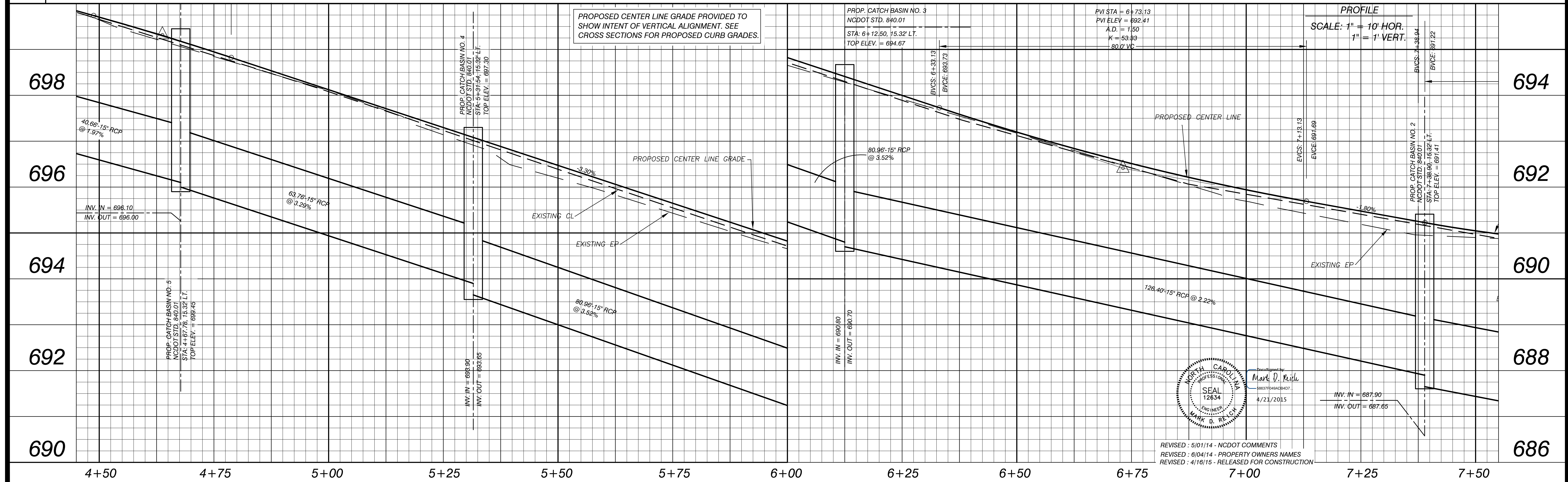
1. BETWEEN STATION 4+45 +/- TO STATION 6+60, EXISTING UNDERGROUND GAS MAIN WAS FIELD LOCATED BASED ON PAINT MARKINGS IN FIELD.
2. GAS MAIN LOCATIONS BEYOND SAID STATIONS SHOWN BASED ON PIEDMONT NATURAL GAS OVERALL MAP, DATED 1993.

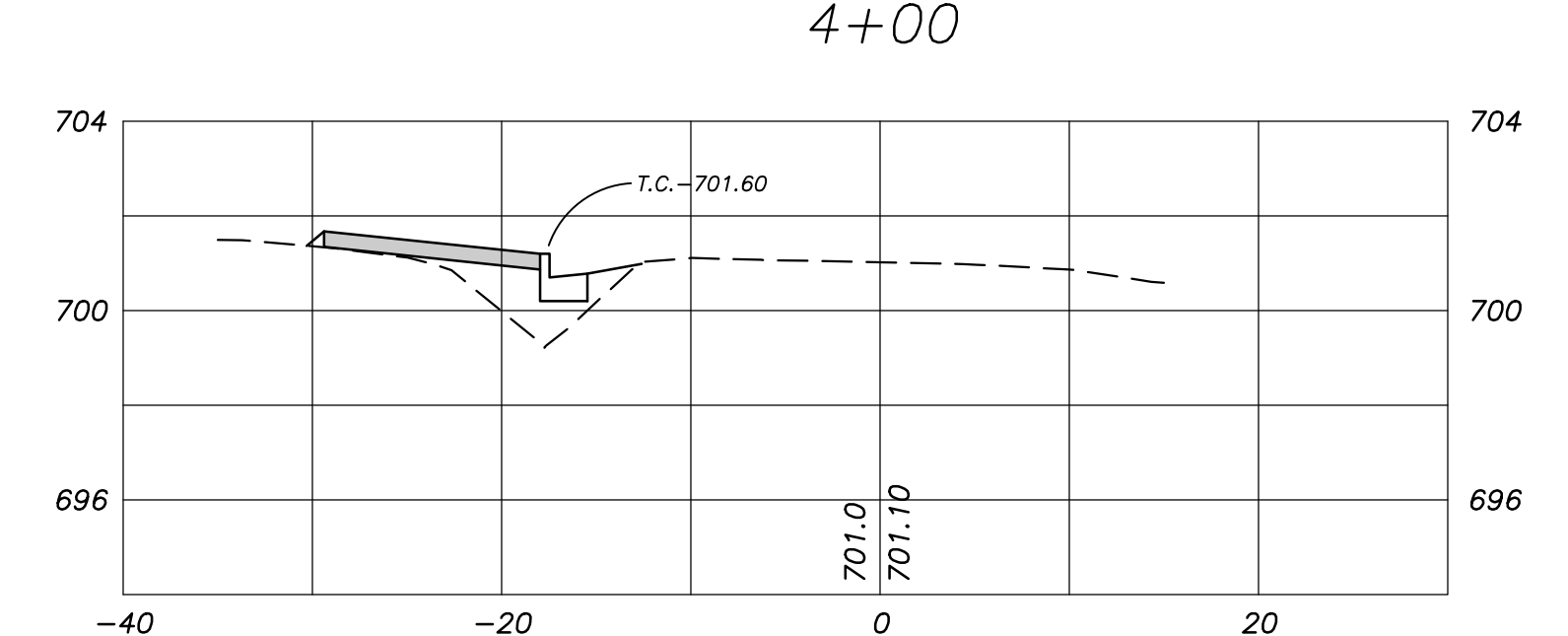
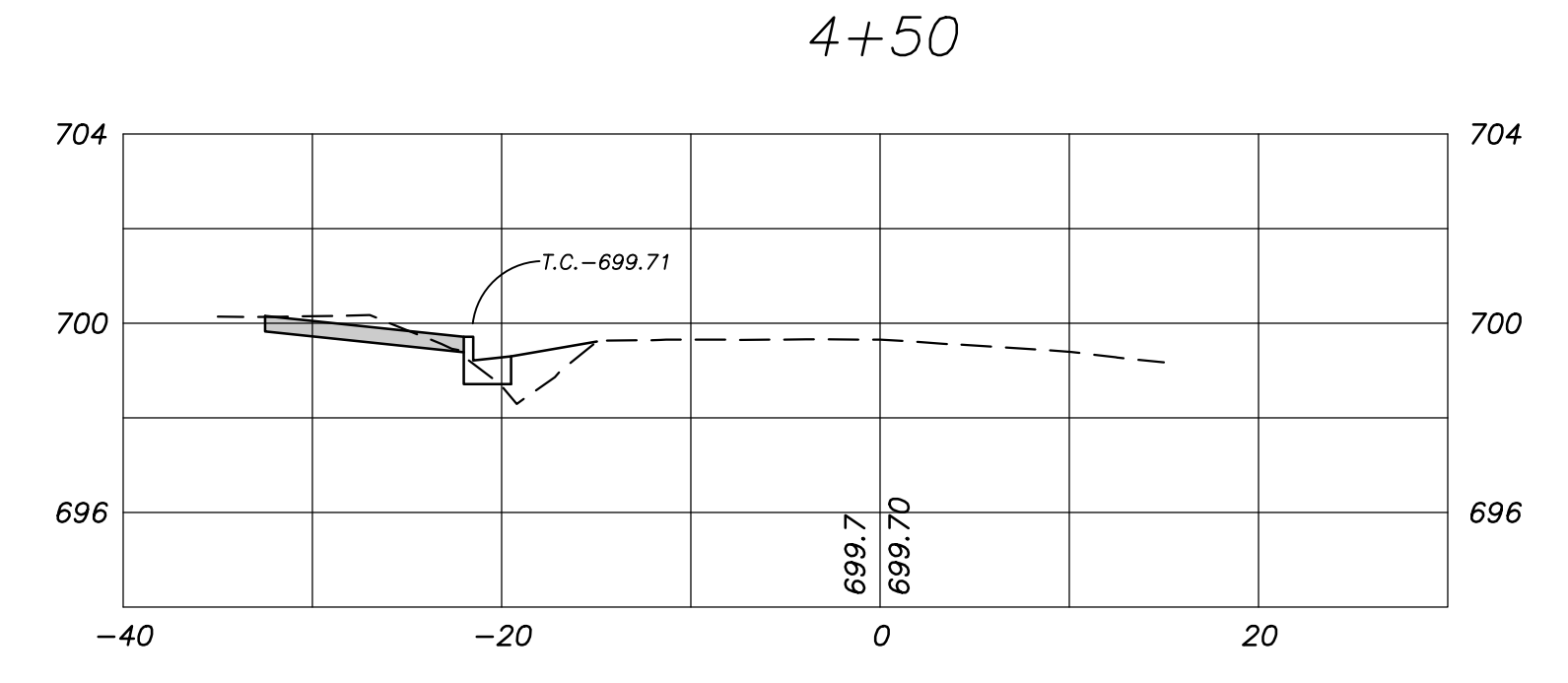
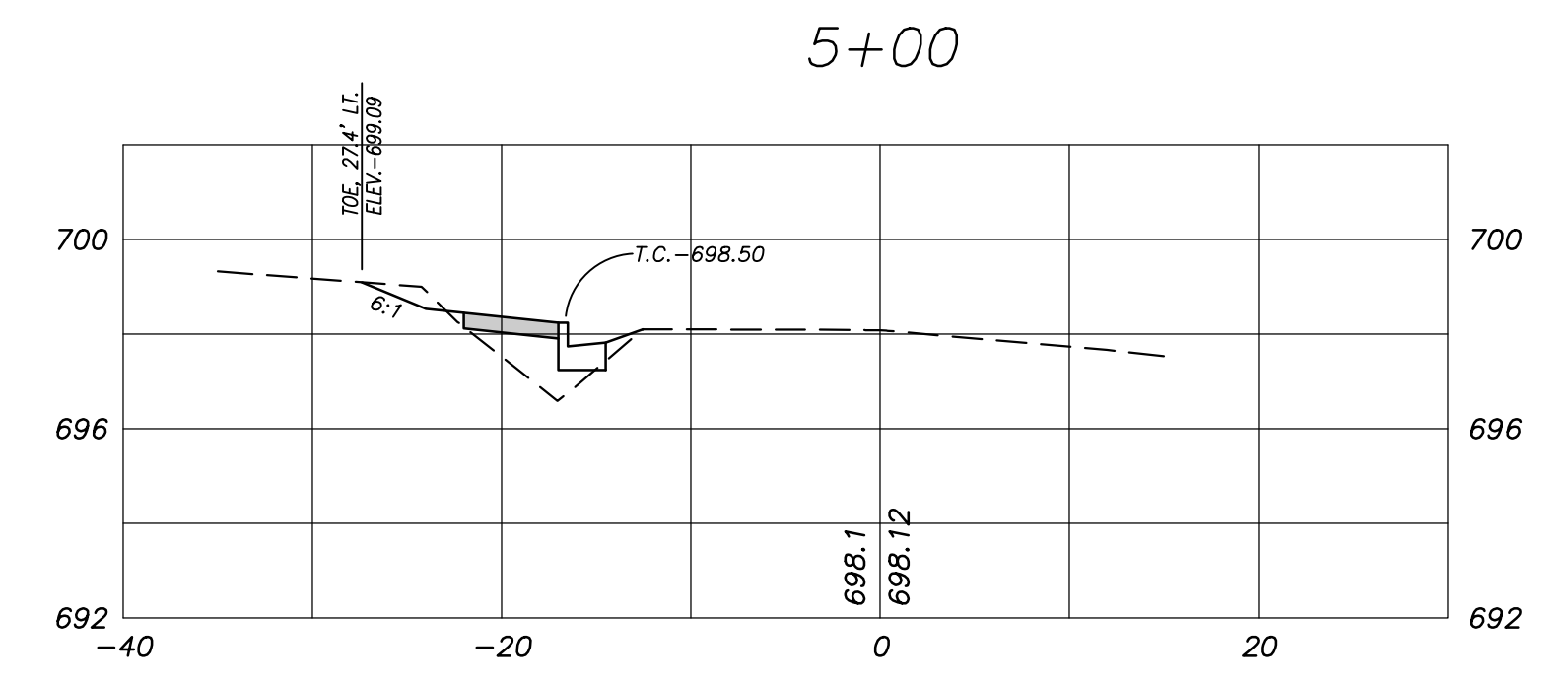
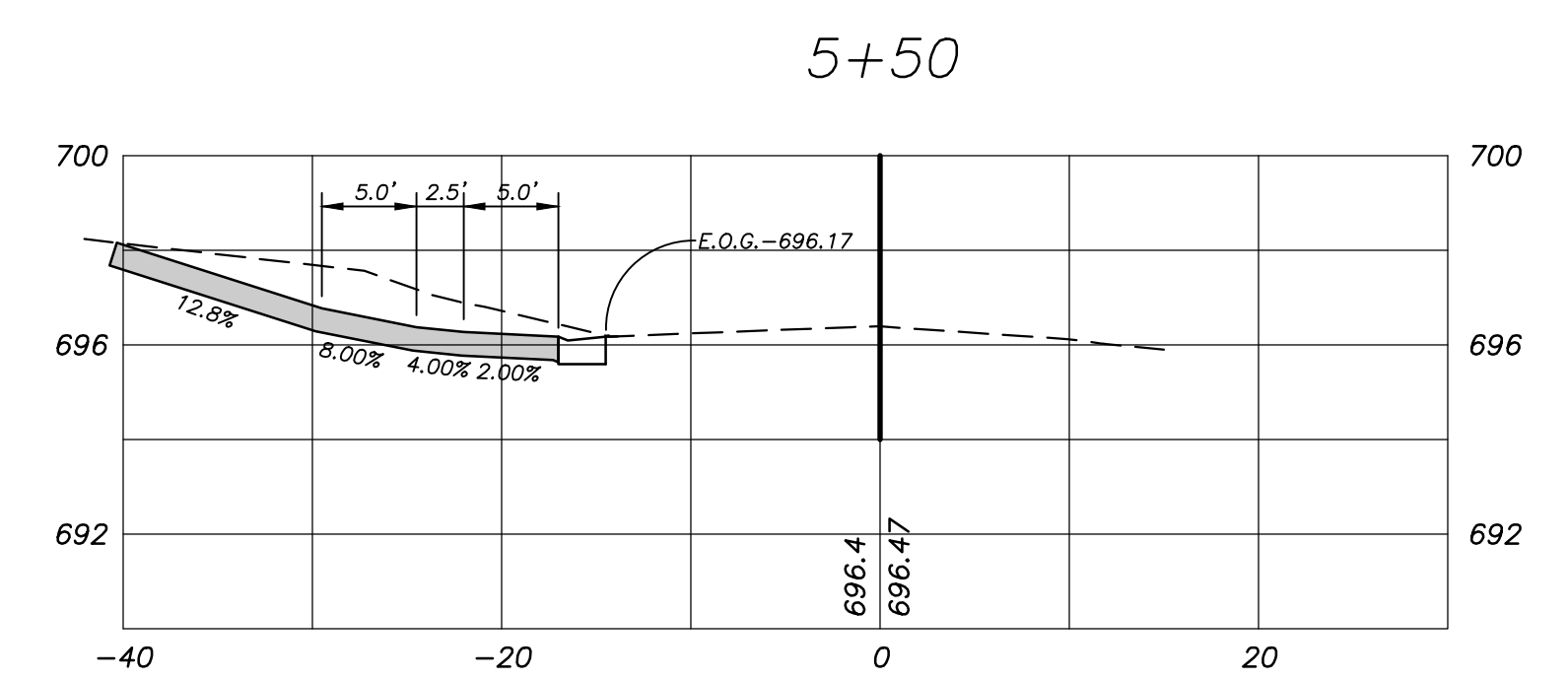
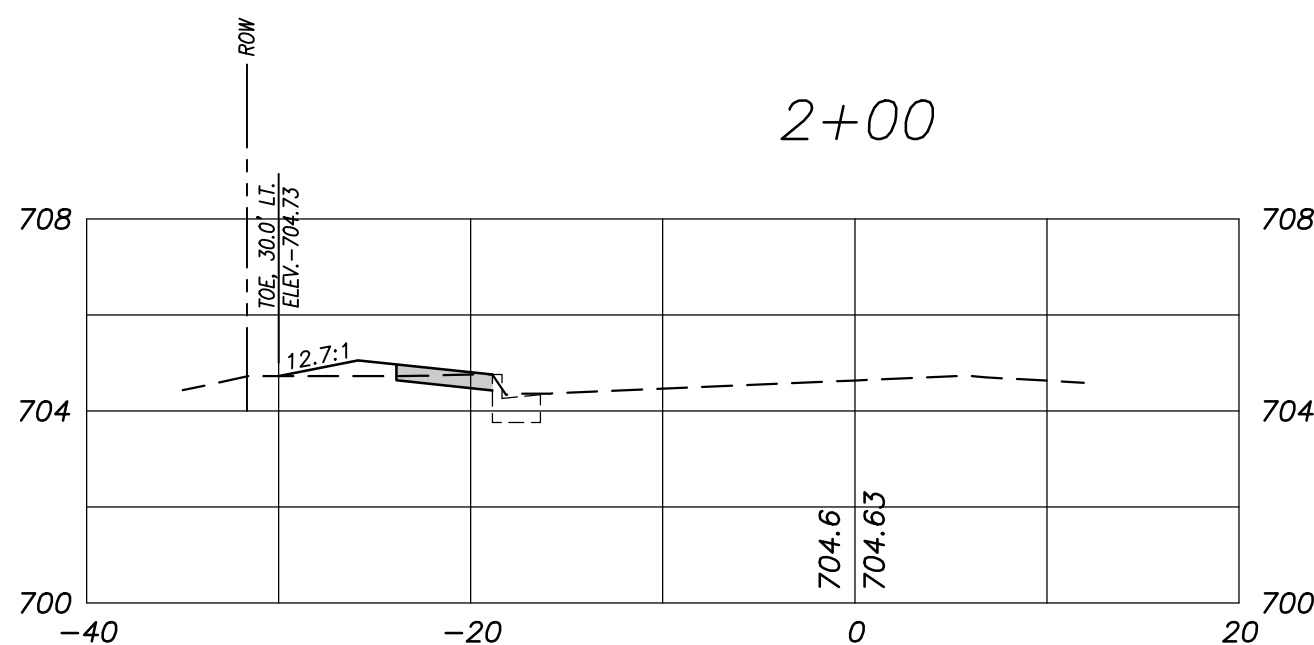
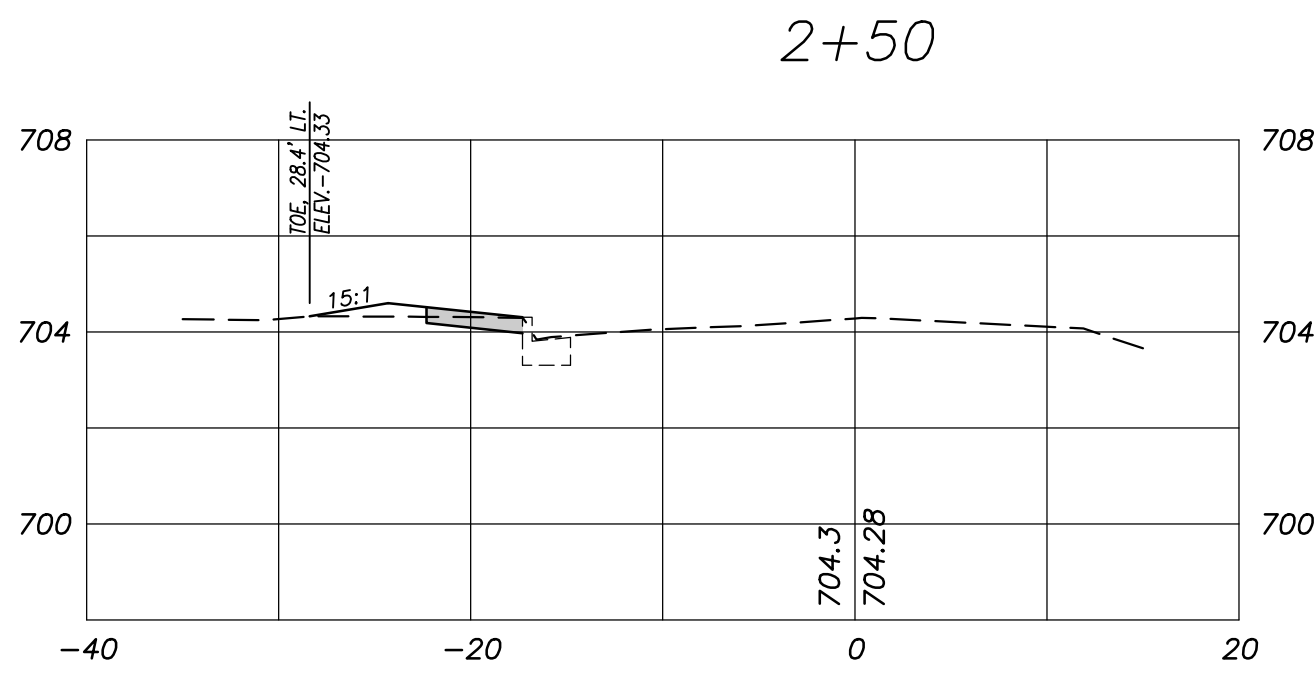
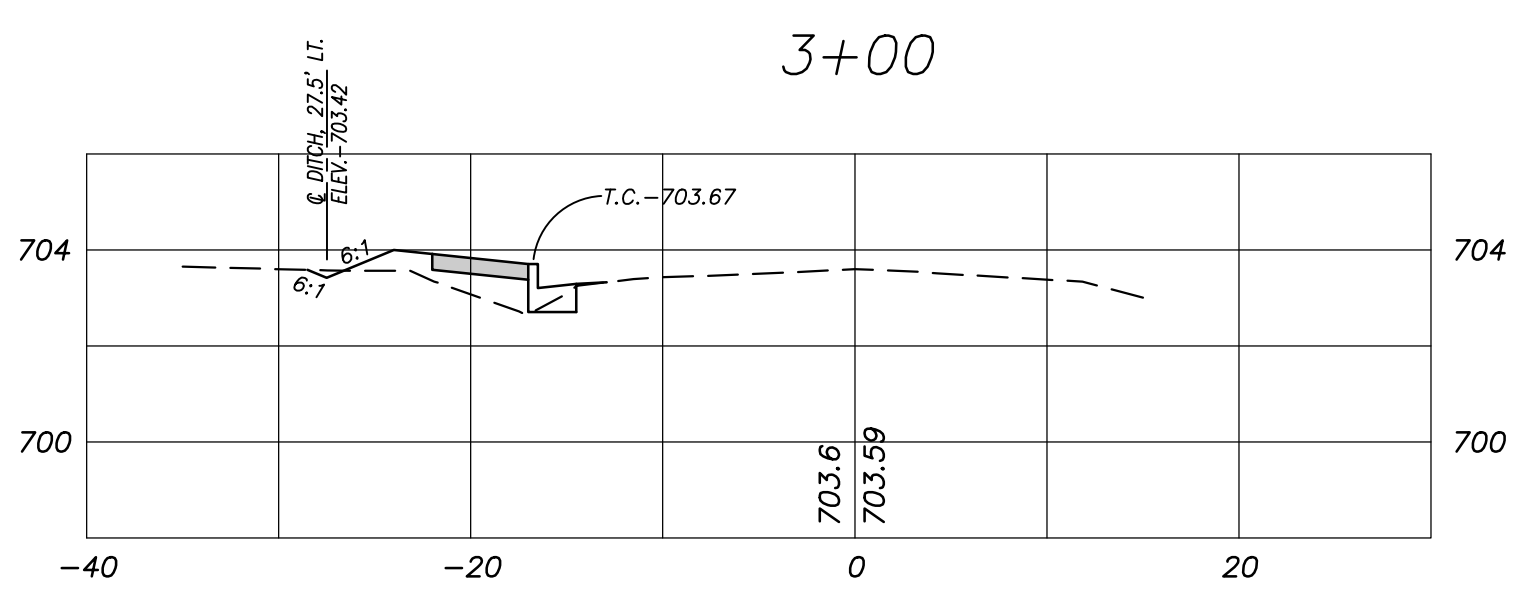
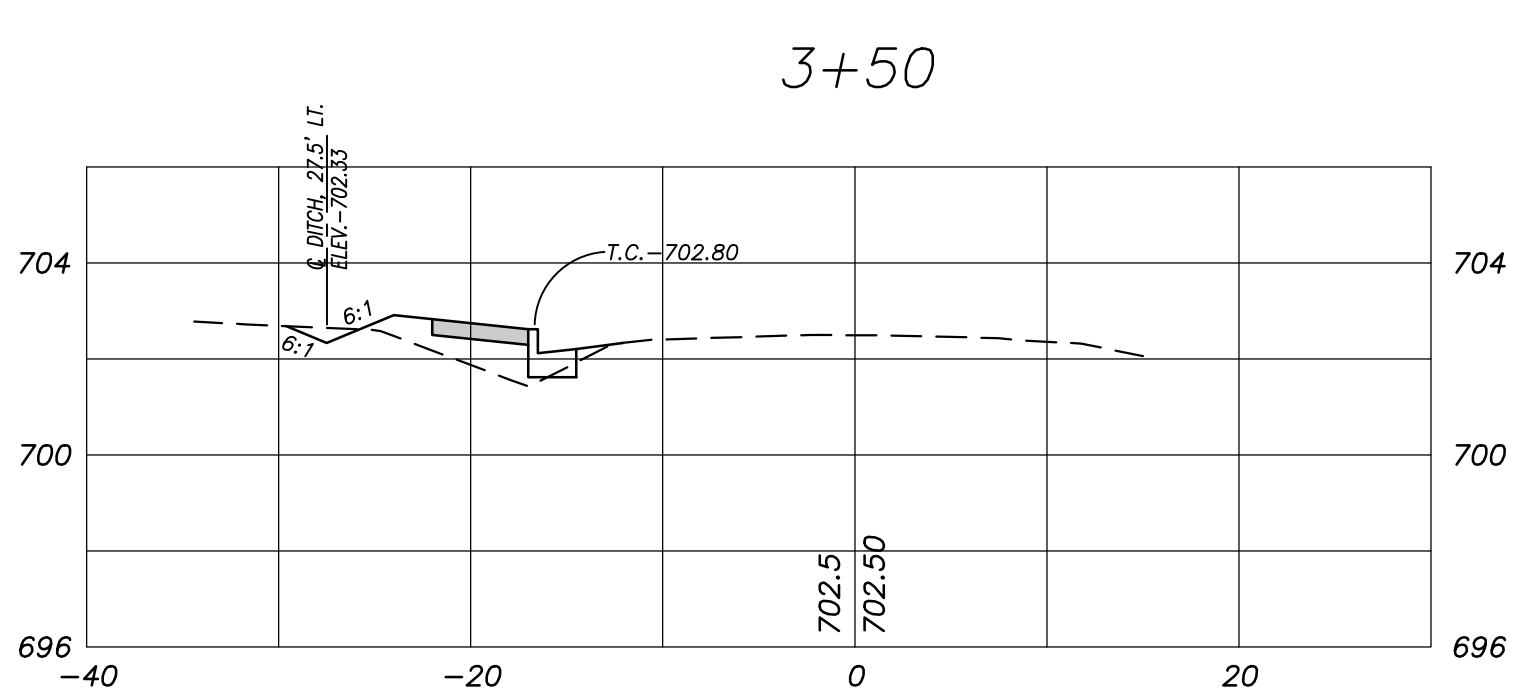
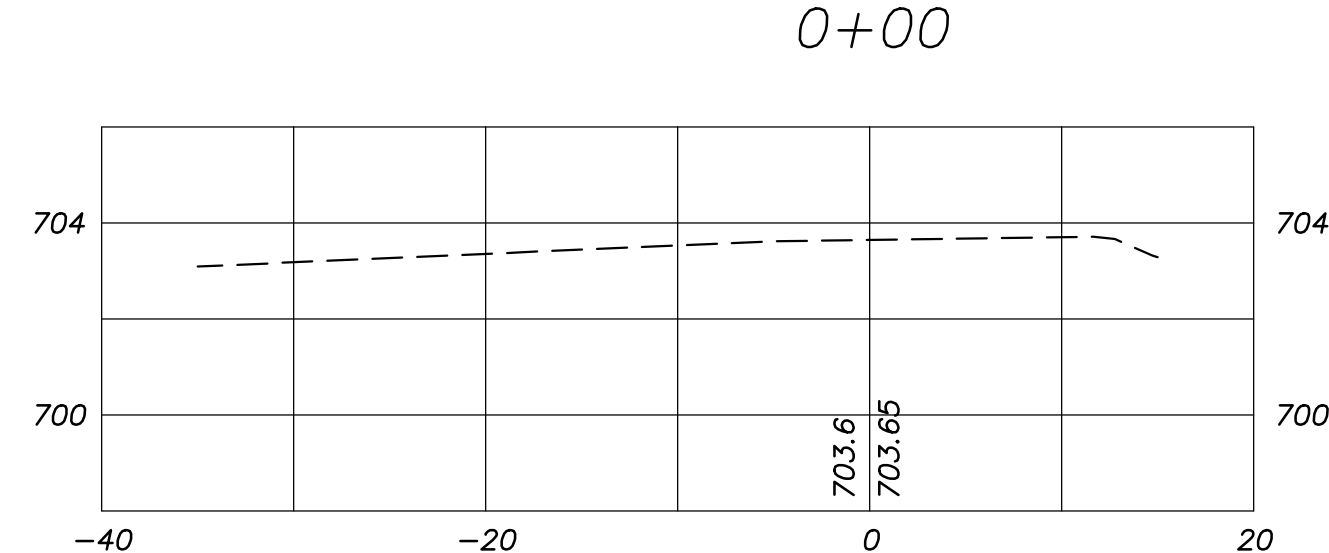
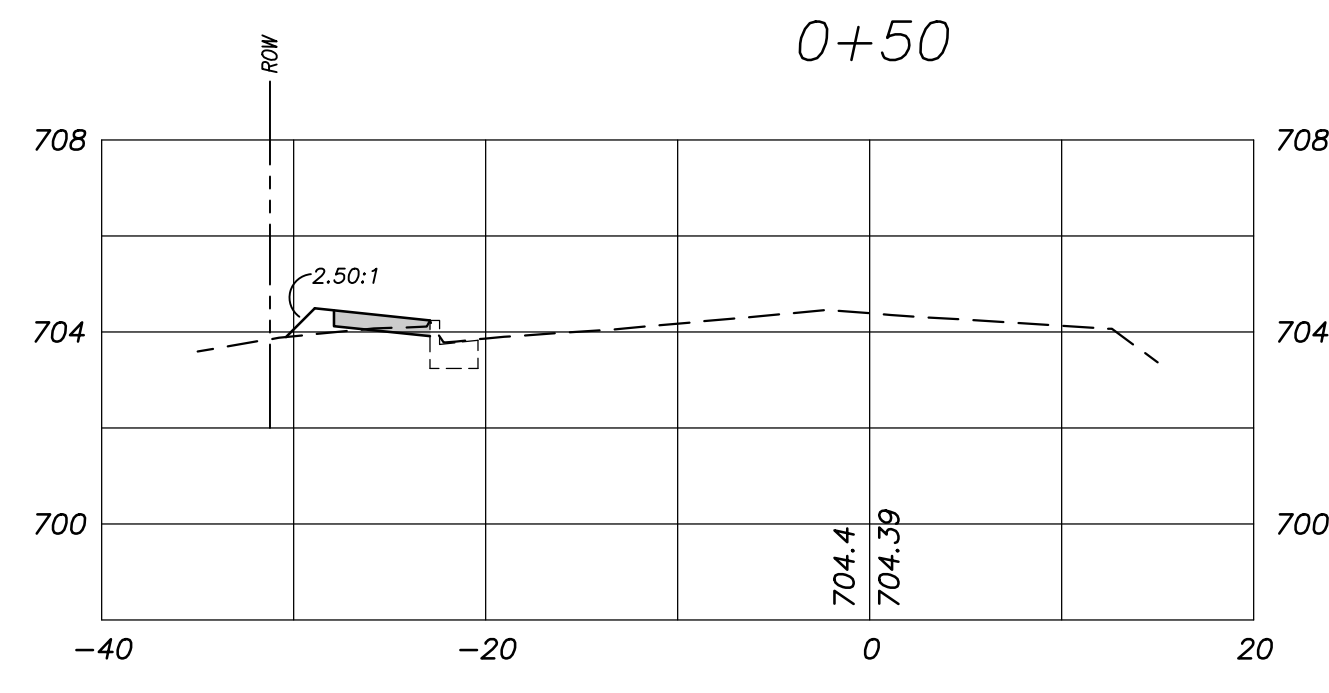
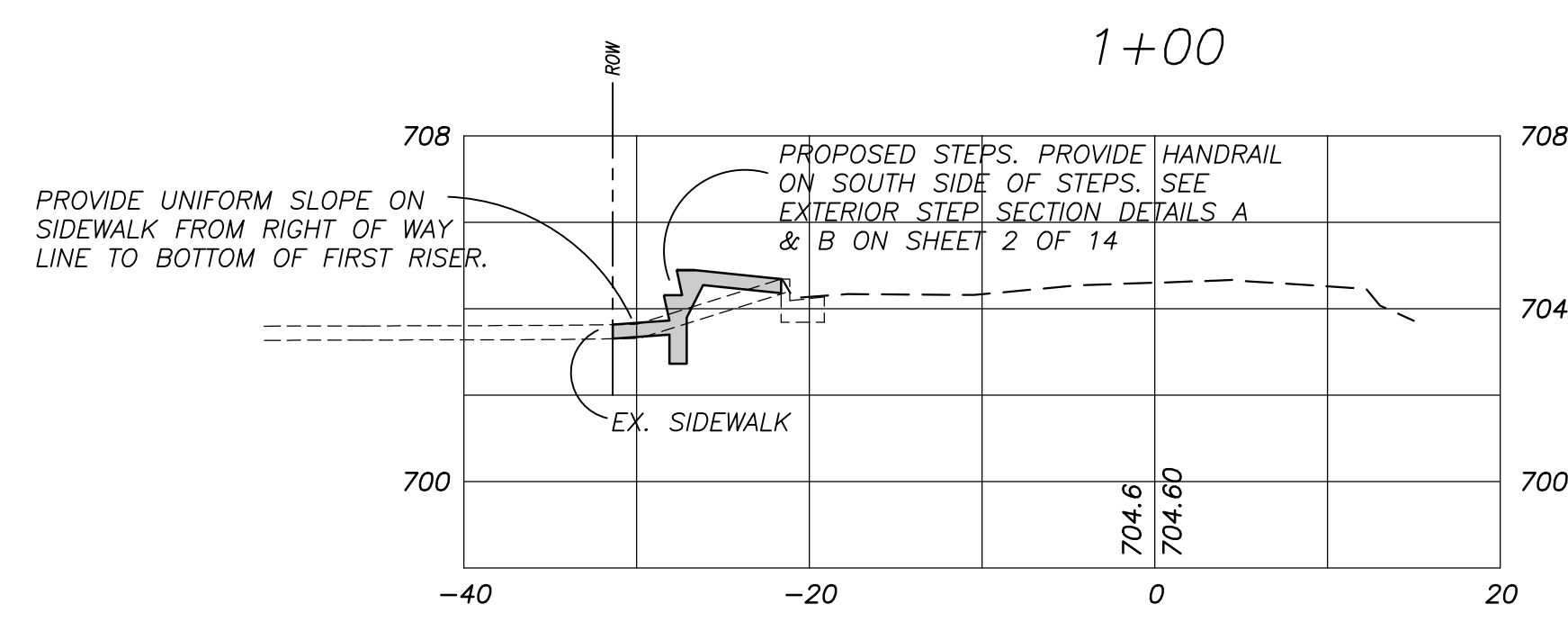
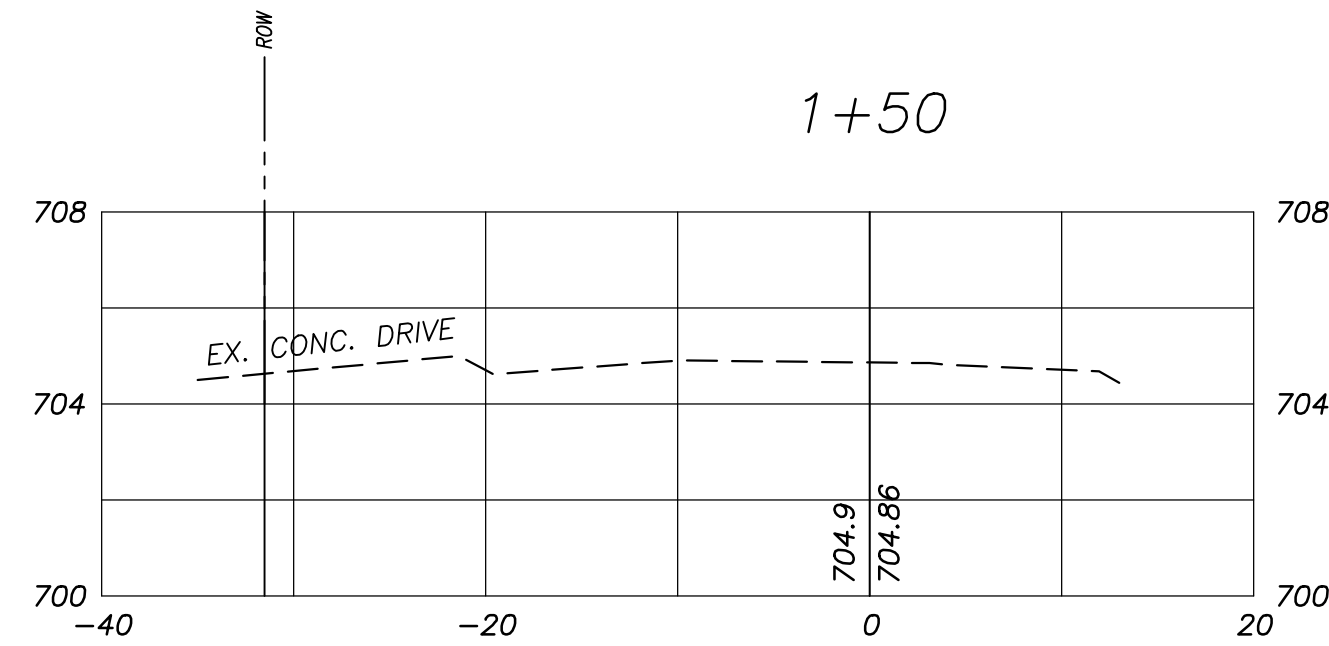
LEGEND

○	EIP	⊗	CLEAN OUT		DESIGNATES TREE TO BE REMOVED
×	CALCULATED POINT	□	CURB INLET		
⊙	LAMP POST	▨	GRATE INLET		
Ⓢ	SANITARY SEWER MANHOLE	■	YARD INLET		PROPOSED 4" CONCRETE SIDEWALK
PP	POWER POLE	MW	MONITORING WELL		
LP	LIGHT POLE	⊕	LANDSCAPE LIGHT		PROPOSED CURB & GUTTER
WM	WATER METER	B*	BOLLARDS		
WV	WATER VALVE	GTS	GAS TESTING STATION		PROPOSED STORM SEWER PIPE
FH	FIRE HYDRANT	TPED	TELEPHONE PEDESTAL		

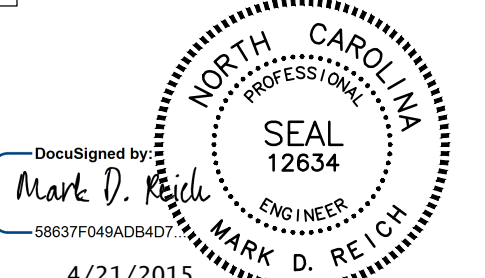


REVISED : 5/01/14 - REVISED STORM DRAIN CHART
& ADDED GUTTER SPREAD CALCS.
REVISED : 3/27/15 - REVISED ADDED STEP DETAILS
REVISED : 4/16/15 - RELEASED FOR CONSTRUCTION

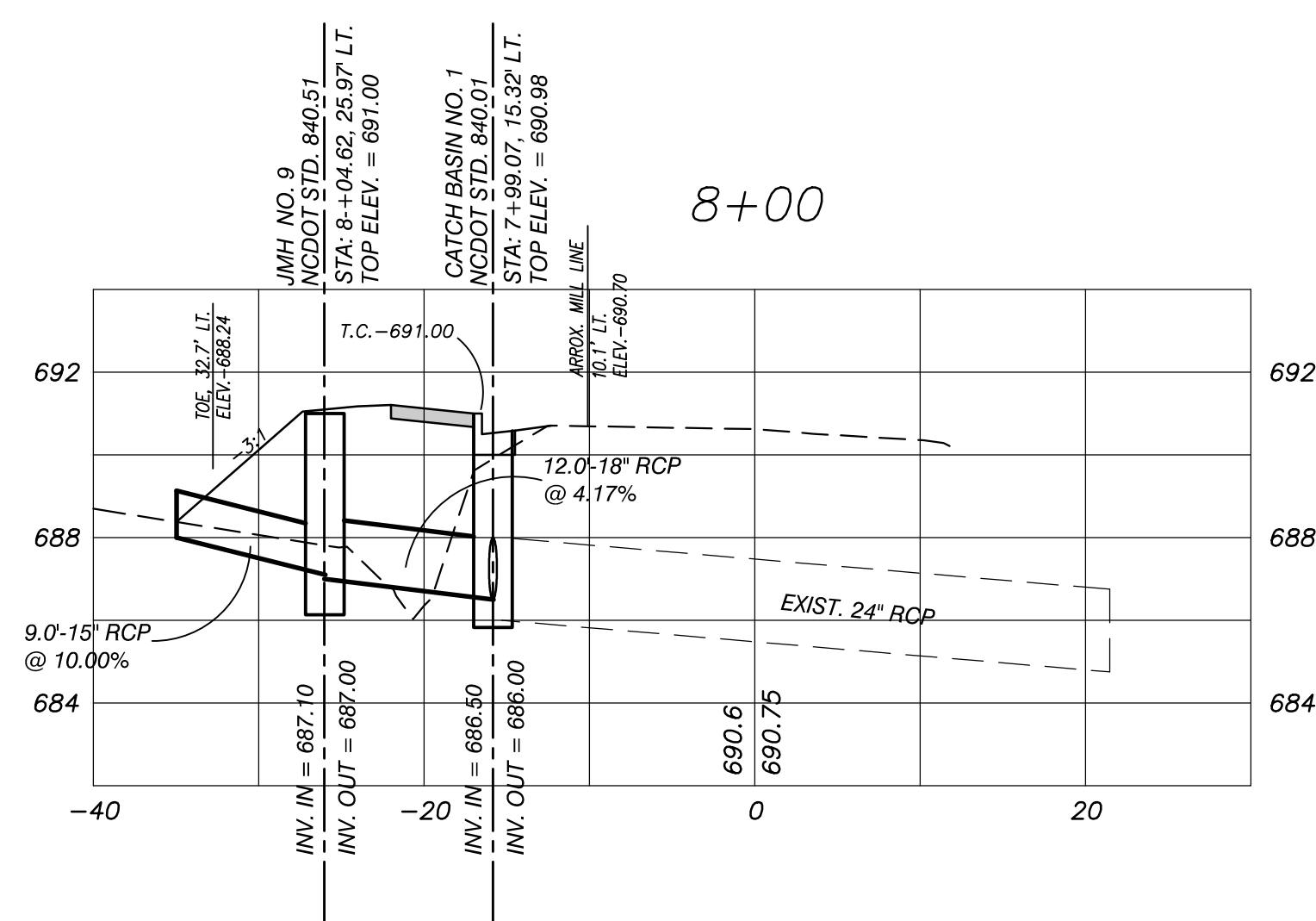
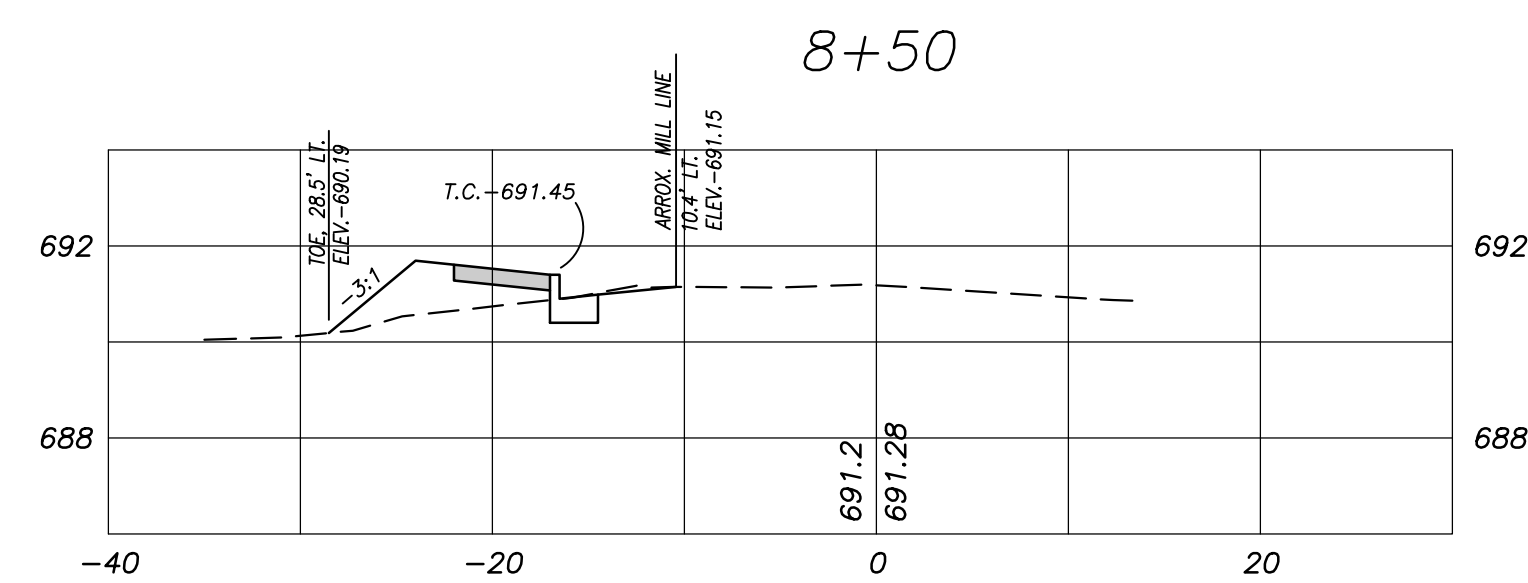
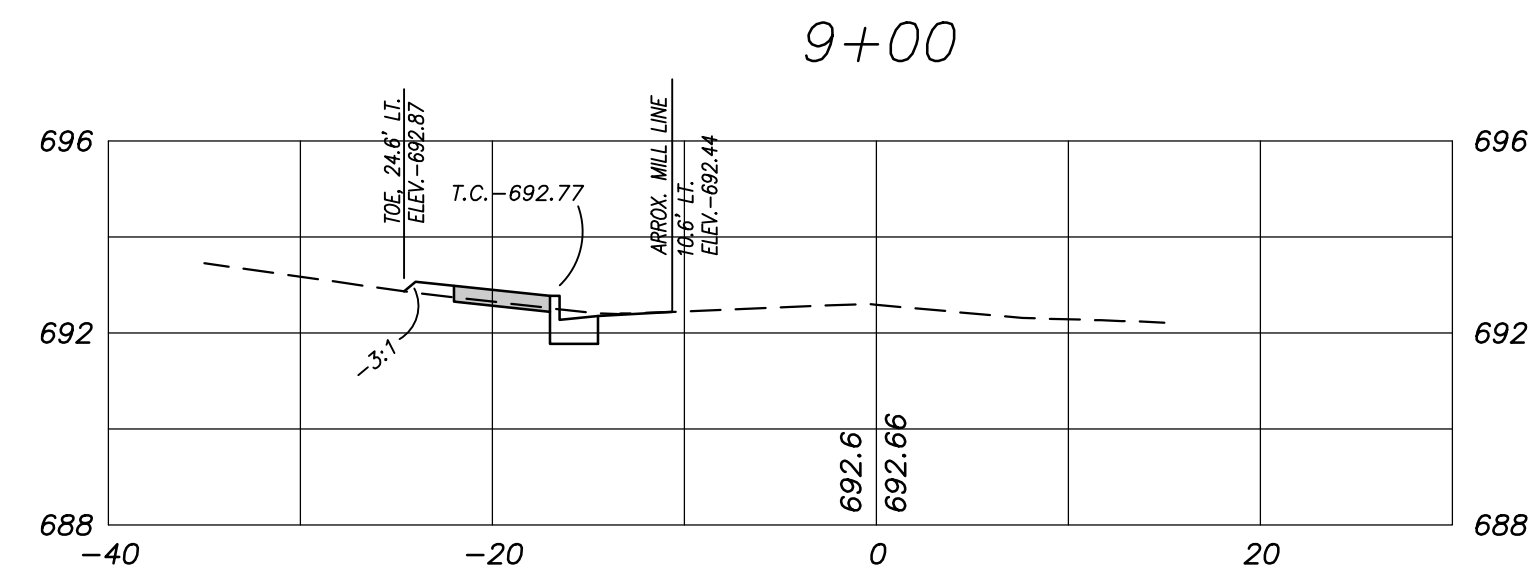
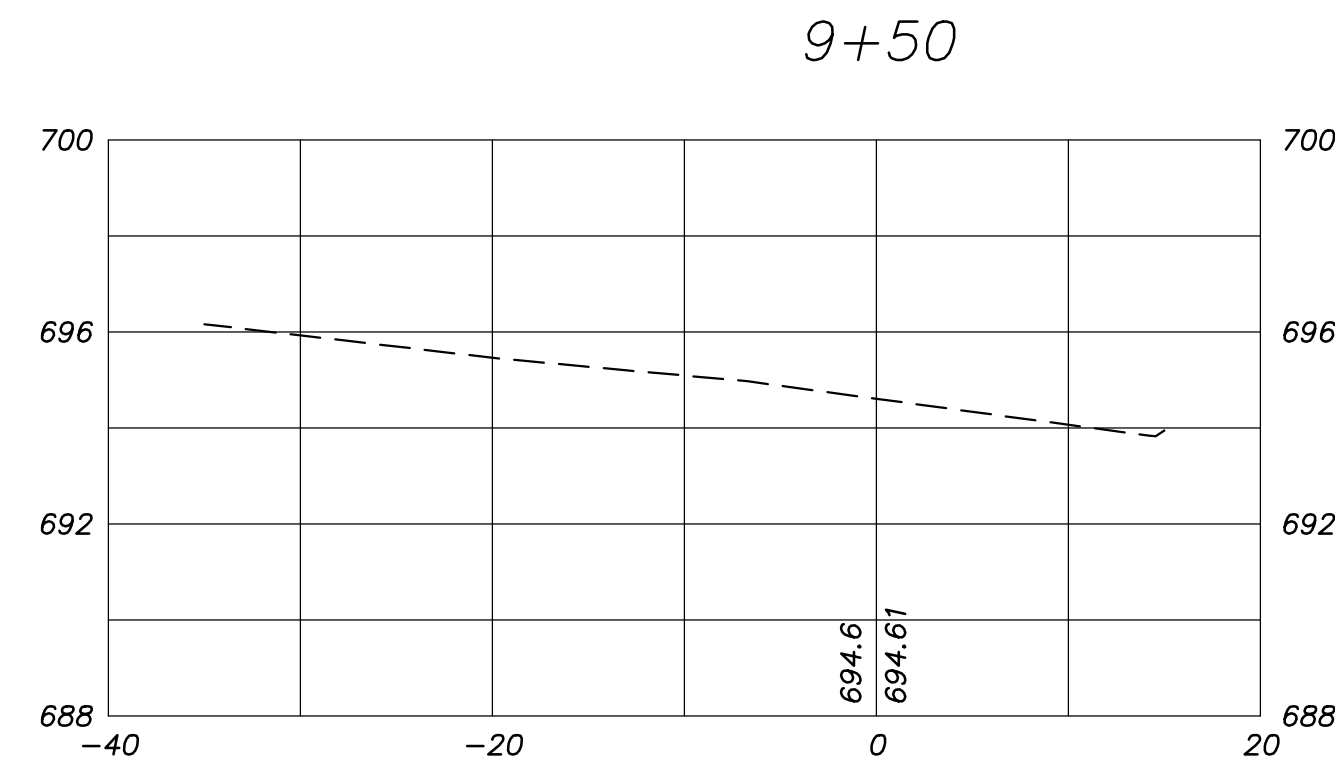
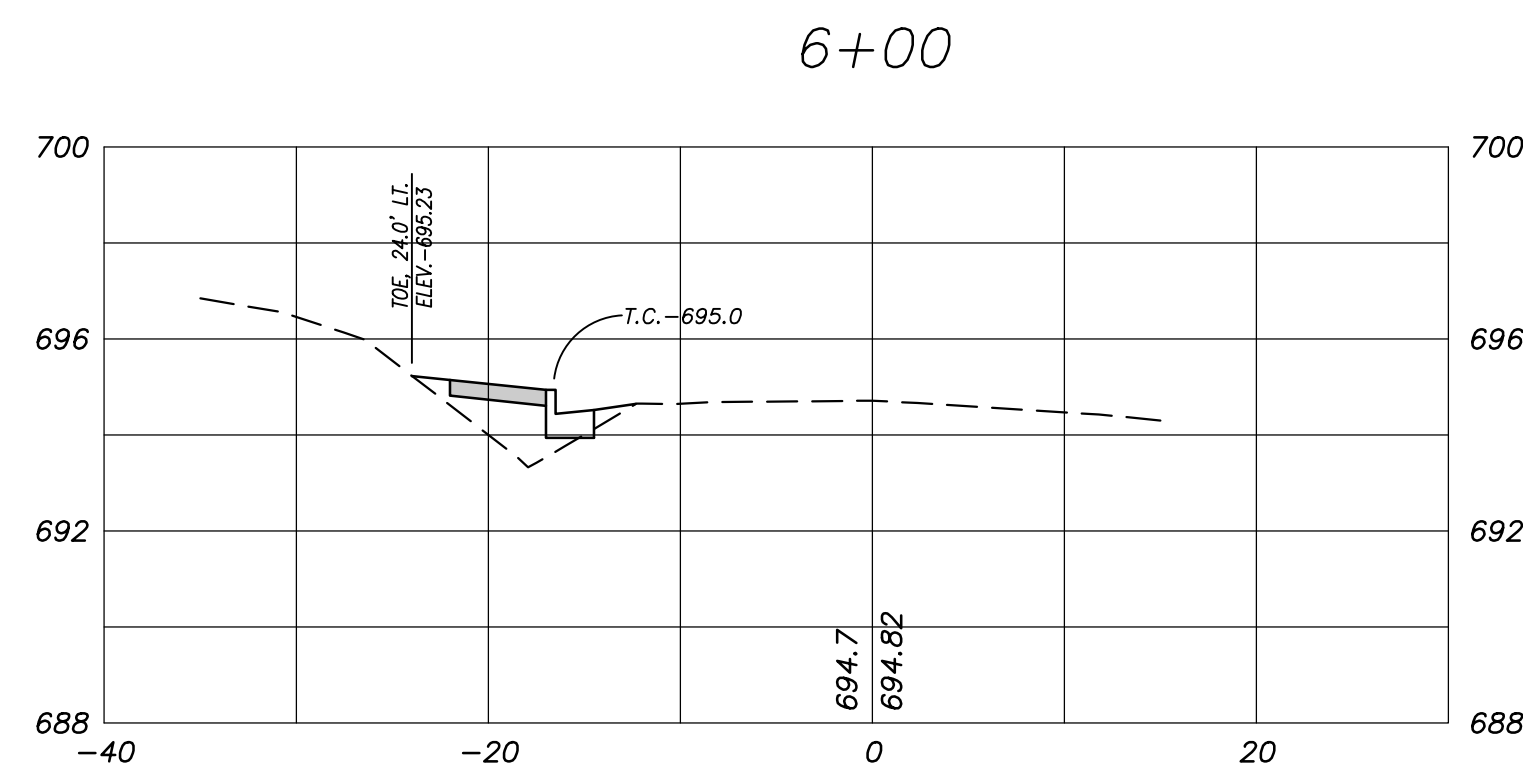
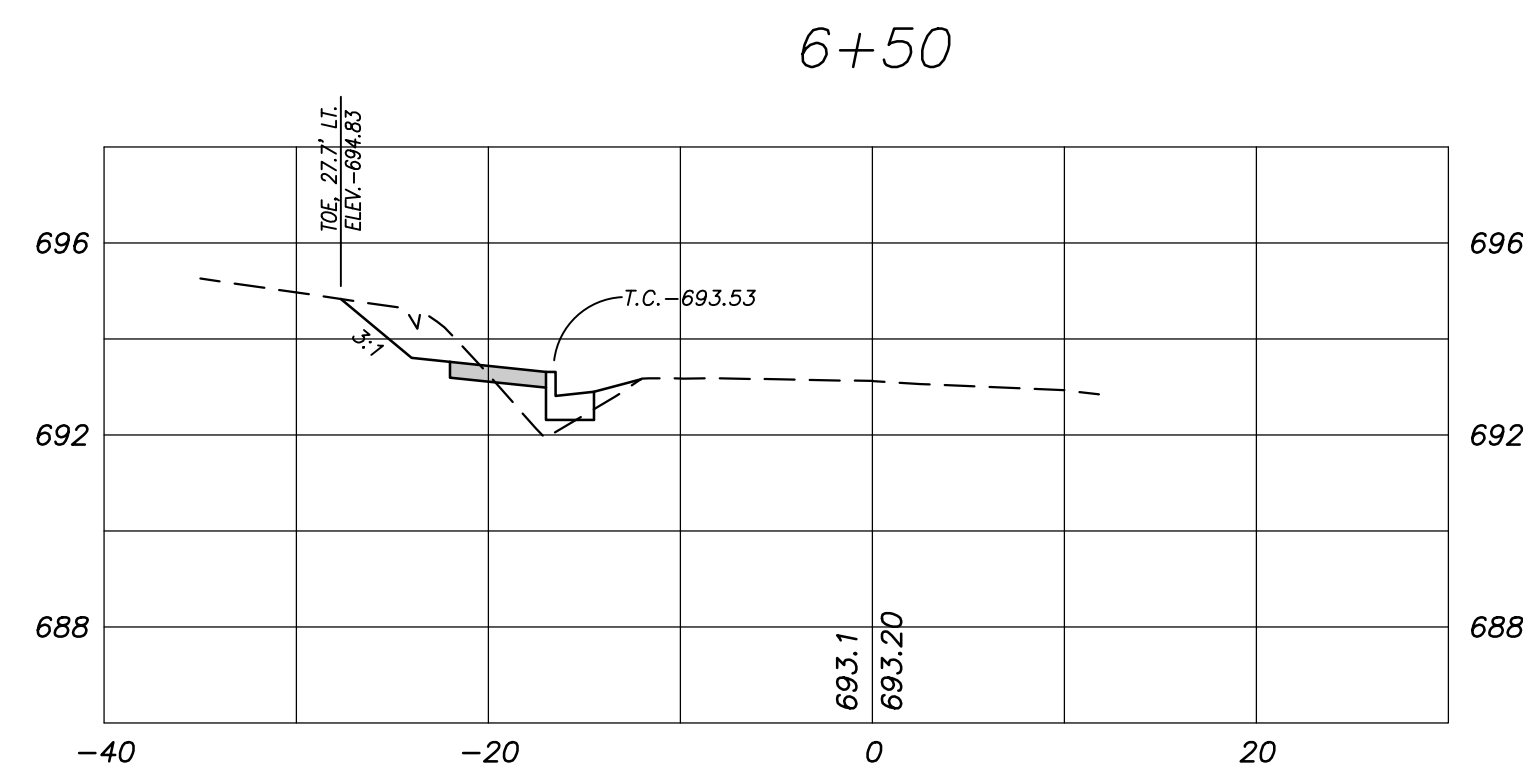
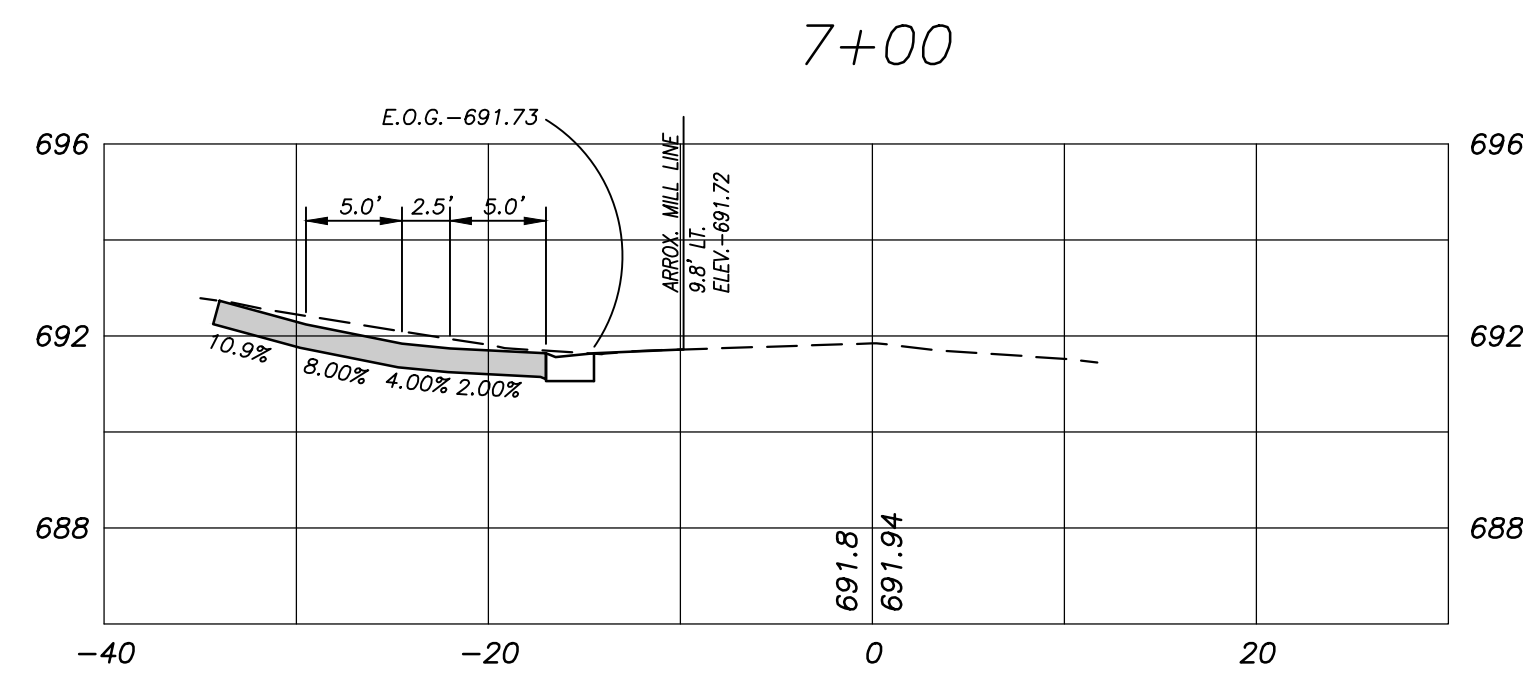
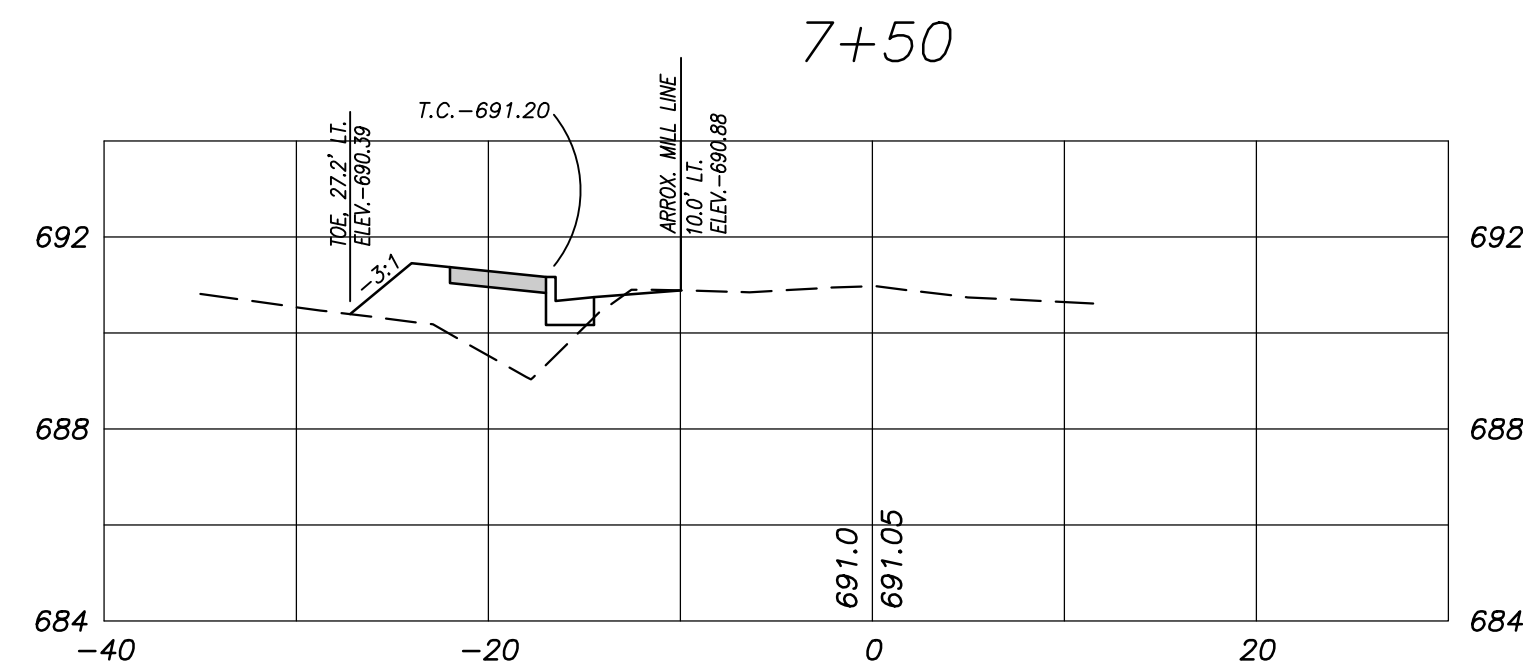




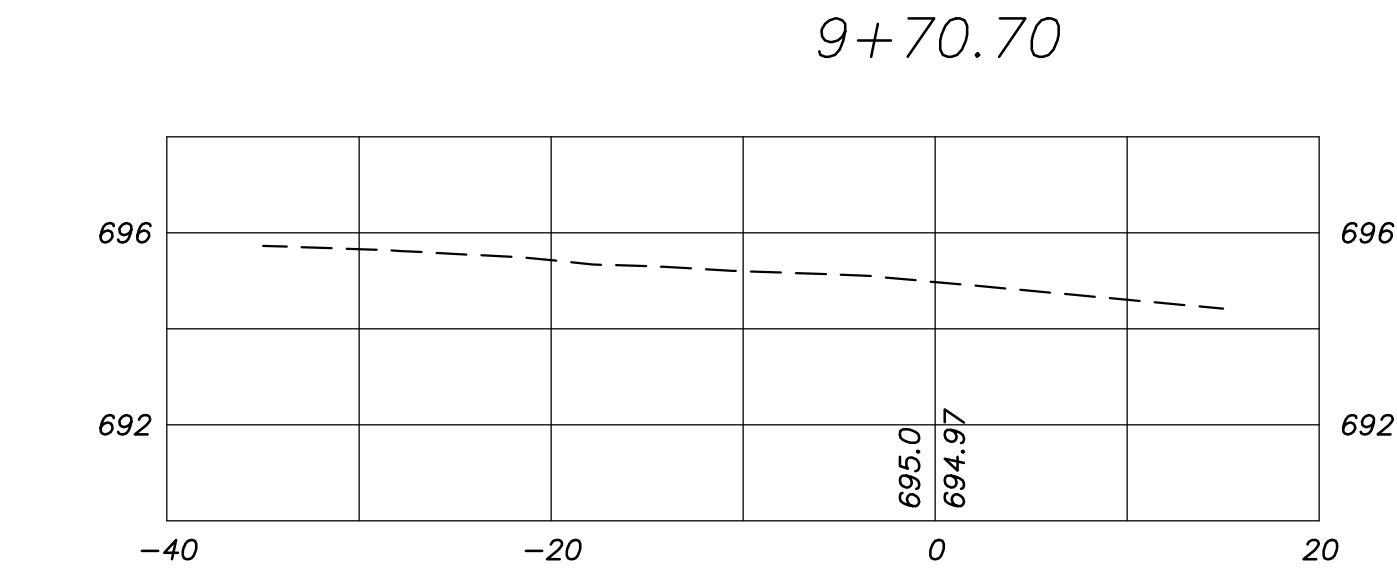
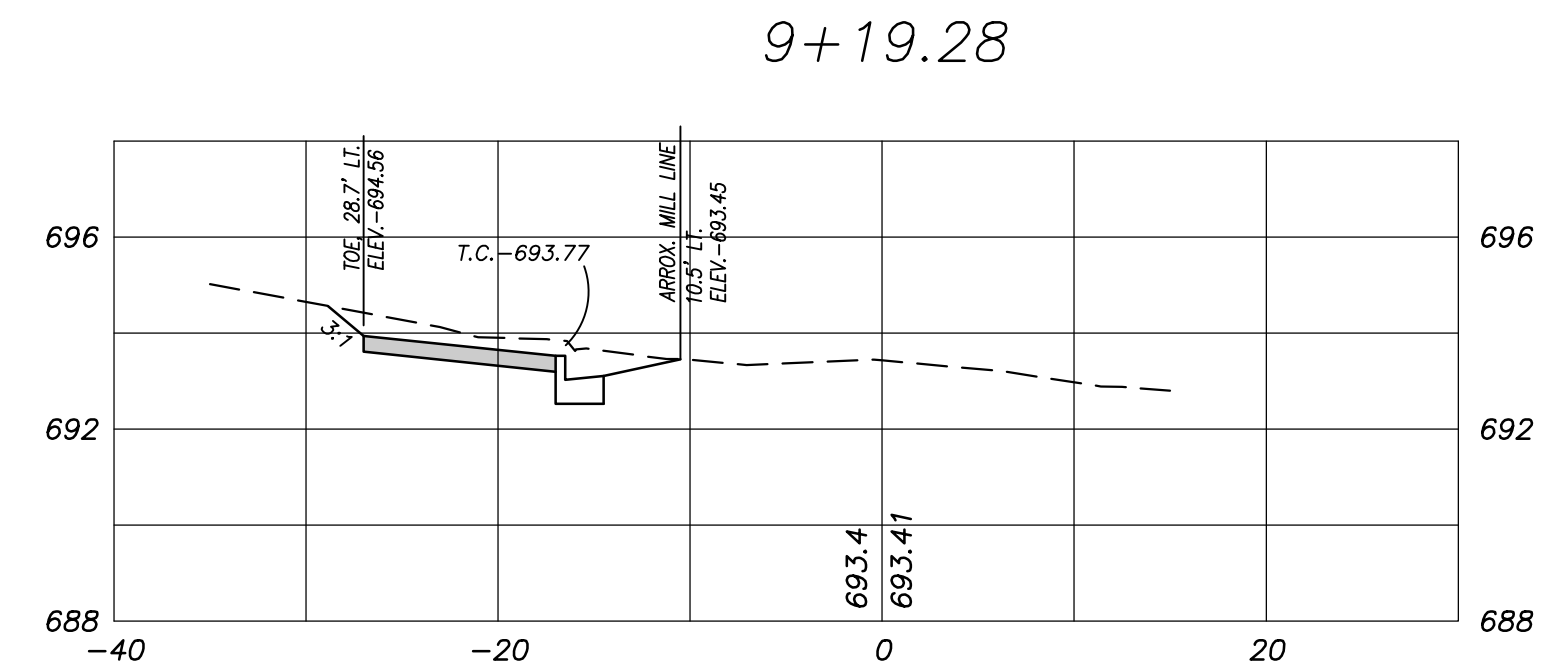
SCALES
HORIZONTAL: 1" = 10'
VERTICAL: 1" = 4'



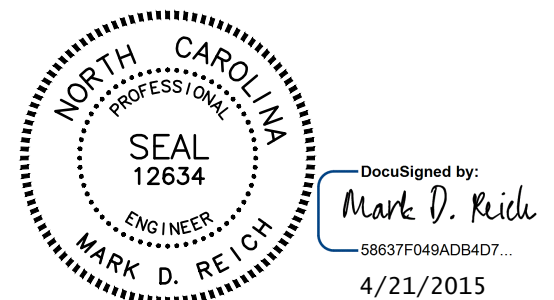
REVISED : 3/27/15 - REVISED FILL SLOPE ON CROSS SECTION 0+50 AND ADDED STEPS
REVISED : 4/18/15 - RELEASED FOR CONSTRUCTION



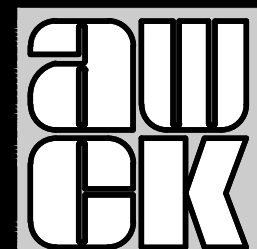
SCALES
HORIZONTAL: 1" = 10'
VERTICAL: 1" = 4'



EARTWORK SUMMARY					
Station	Station	Suitable Waste (cy)	Borrow Excavation (cy)	15% Shrinkage (cy)	Total Borrow Excavation (cy)
0+20	9+40	156.3	224.6	10.2	78.5
			Say		100.0



REVISED : 4/16/15 - RELEASED FOR CONSTRUCTION



alley, williams, carmen & king, inc.
ENGINEERS, ARCHITECTS & SURVEYORS
740 chapel hill road
burlington, n.c. 27215
Firm's Engineering License No. F-0203

NORTH OAK AVENUE
BOONE STATION TOWNSHIP - ELON, NORTH CAROLINA

STREET & SIDEWALK IMPROVEMENTS
ELON, NORTH CAROLINA

BOOK NO. ???

DATE: 02-21-2014
COMP FILE: 12158base.dwg
DRAWN BY: PLW
CHECKED BY: MDR

CROSS SECTIONS

JOB NO. 12158
SHEET NO. 8
OF 14

STATE OF NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N. C.

DETAIL SHOWING TYPES OF GRATES
USE ACCORDING TO WATER FLOW.

STATE OF NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N. C.

ENGLISH STANDARD DRAWING FOR
FRAME, GRATES, AND HOOD
FOR USE ON STANDARD CATCH BASIN

SECTION A-A

SECTION B-B

ENGLISH STANDARD DRAWING FOR
FRAME, GRATES, AND HOOD
FOR USE ON STANDARD CATCH BASIN

SECTION A-A

SECTION B-B

SECTION A-A

SECTION B-B

SECTION A-A

SECTION B-B

SECTION A-A

SECTION B-B

SECTION A-A

SECTION B-B

SECTION A-A

SECTION B-B

SECTION A-A

SECTION B-B

SECTION A-A

SECTION B-B

SECTION A-A

SECTION B-B

SECTION A-A

SECTION B-B

SECTION A-A

SECTION B-B

SECTION A-A

SECTION B-B

SECTION A-A

SECTION B-B

SECTION A-A

SECTION B-B

SECTION A-A

SECTION B-B

SECTION A-A

SECTION B-B

SECTION A-A

SECTION B-B

STATE OF NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

ENGLISH STANDARD BRICK CATCH BASIN
12" THRU 54" PIPE

BRICK CATCH BASIN

ENGLISH STANDARD BRICK CATCH BASIN
12" THRU 54" PIPE

PLAN OF TOP SLAB

SECTION S-S

DOWEL

PLAN

ELEVATION

ELEVATION

MINIMUM DIMENSIONS AND QUANTITIES FOR BRICK CATCH BASIN (BASED ON MIN. HEIGHT, 12", WITH NO RIDGE*)																	
DIMENSIONS OF BOX AND PIPE				TOP SLAB DIMENSIONS		BASE-U		BASE-V		CU. YDS. CONC. IN BOX		BRICK MASONRY		WICK PIPE		DEDUCTIONS	
PIPE	SPAN	WIDTH	DEPTH	MIN.	HEIGHT	NO.	LENGTH	NO.	LENGTH	NO.	LENGTH	TOTAL	NO.	TOTAL	NO.	TOTAL	NO.
6"	6"	6"	6"	6"	6"	2	2'-0"	2	2'-0"	2	2'-0"	0.281	0.281	0.883	1.164	0.050	0.042
12"	3'-0"	2'-2"	2'-2"	2'-2"	2'-2"	2	2'-0"	2	2'-0"	2	2'-0"	0.281	0.281	0.883	1.244	0.051	0.047
18"	3'-0"	2'-2"	2'-2"	2'-2"	2'-2"	2	2'-0"	2	2'-0"	2	2'-0"	0.281	0.281	0.883	1.324	0.044	0.065
24"	3'-0"	2'-2"	2'-2"	2'-2"	2'-2"	2	2'-0"	2	2'-0"	2	2'-0"	0.281	0.281	0.883	1.404	0.070	0.151
30"	3'-0"	2'-2"	2'-2"	2'-2"	2'-2"	4	3'-3"	4	3'-3"	4	3'-3"	0.147	0.374	0.921	1.606	0.217	0.122
36"	3'-0"	2'-2"	3'-10"	3'-10"	3'-10"	4	3'-3"	4	3'-3"	4	3'-3"	0.187	0.415	0.605	1.914	0.316	0.176
42"	3'-0"	2'-2"	4'-8"	4'-8"	4'-8"	4	3'-3"	4	3'-3"	4	3'-3"	0.195	0.373	0.584	2.162	0.460	0.371
48"	3'-0"	2'-2"	5'-0"	5'-0"	5'-0"	4	3'-3"	4	3'-3"	4	3'-3"	0.173	0.410	0.583	2.415	0.368	0.317
54"	3'-0"	2'-2"	5'-0"	5'-0"	5'-0"	4	3'-3"	4	3'-3"	4	3'-3"	0.111	0.448	0.583	2.667	0.465	0.386

* RIGER HAS 321 CUBIC YARDS OF BRICK MASONRY PER FOOT HEIGHT

SHEET 2 OF 2
840.01

840.01

SHEET 2 OF 2
840.01

STATE OF
NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

ENGLISH STANDARD DRAWING FOR
BRICK MANHOLE
12" THRU 36" PIPE

STATE OF
NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

GENERAL NOTES:

MORTAR JOINTS $\frac{1}{2}$ " \pm $\frac{1}{8}$ " THICK.

CONCAVE TOOL ALL EXPOSED JOINTS.

USE CLASS "B" CONCRETE THROUGHOUT.

USE FORMS TO CONSTRUCT THE BASE SLAB.

JUMBO BRICK WILL BE PERMITTED. CONCRETE BRICK OR 4" SOLID CONCRETE BLOCKS MAY BE USED IN LIEU OF CLAY BRICK.

IF REINFORCED CONCRETE PIPE IS SET IN BASE SLAB OF BOX, ADD TO BASE AS SHOWN IN STD. NO. 840.03.

WHERE THE MANHOLE IS EXPOSED TO ROAD TRAFFIC, CONSTRUCT THE TOP OF THE MANHOLE FLUSH WITH THE GROUND. AT OTHER LOCATIONS CONSTRUCT A MINIMUM OF 9" ABOVE THE GROUND.

PROVIDE MANHOLES OVER 3'-6" IN DEPTH WITH STEPS 12" ON CENTERS IN ACCORDANCE WITH STD. NO. 840.66.

MINIMUM DIMENSIONS AND QUANTITIES FOR MANHOLE

PIPE DIM.	CU. YDS. CONCRETE	TOTAL BRICK MASONRY CU. YDS.	CU. YDS. BRICK MASONRY PER FT. HT.	DEDUCTIONS FOR ONE PIPE (CU. YD.)	C.M.	R.C.
D	BASE	ABOVE S.L.	BELOW S.L.			
12"	0.560	0.830	0.323	0.020	0.023	
15"	0.560	0.830	0.323	0.031	0.047	
18"	0.560	0.830	0.323	0.044	0.065	
24"	0.560	0.830	0.323	0.078	0.113	
30"	0.560	0.830	0.323	0.122	0.170	
36"	0.560	0.830	0.323	0.176	0.238	

SHEET 1 OF 1

SHEET 1 OF 1

STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C.	NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C.	<p>NOTE: INSTALL ALL STEPS PROTRUDING 4" FROM INSIDE FACE OF STRUCTURE WALL. STEPS DIFFERING IN DIMENSIONS, CONFIGURATION, OR MATERIALS FROM THOSE SHOWN MAY ALSO BE USED PROVIDED THE CONTRACTOR HAS FURNISHED THE ENGINEER WITH DETAILS OF THE PROPOSED STEPS AND HAS RECEIVED WRITTEN APPROVAL FROM THE ENGINEER FOR THE USE OF SUCH STEPS.</p> <p>PLAN</p> <p>SIDE ELEVATION</p> <p>CAST IRON</p> <p>ELEVATION</p>	<p>PLAN</p> <p>SIDE ELEVATION</p> <p>COMPOSITE</p> <p>ELEVATION</p> <p>POLYPROPYLENE (PLASTIC)</p> <p>#3 DEFORMED STEEL ROD</p>	<p>PLAN</p> <p>SIDE ELEVATION</p> <p>CAST IRON</p> <p>ELEVATION</p>	<p>PLAN</p> <p>SIDE ELEVATION</p> <p>REINFORCING STEEL</p> <p>NOTE: DO NOT USE IN SANITARY SEWER MANHOLES.</p>	STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C.
SHEET 1 OF 1	SHEET 1 OF 1	ENGLISH STANDARD DRAWING FOR DRAINAGE STRUCTURE STEPS	ENGLISH STANDARD DRAWING FOR DRAINAGE STRUCTURE STEPS	ENGLISH STANDARD DRAWING FOR DRAINAGE STRUCTURE STEPS	ENGLISH STANDARD DRAWING FOR DRAINAGE STRUCTURE STEPS	SHEET 1 OF 1

PLAN OF FRAME

SECTION A-A

SECTION B-B

MINIMUM WEIGHTS - LBS.	
FRAME -	160
COVER -	120
TOTAL -	300

PLAN OF COVER

**ENGLISH STANDARD DRAWING FOR
MANHOLE FRAME AND COVER**


**ENGLISH STANDARD DRAWING FOR
MANHOLE FRAME AND COVER**

SHEET 1 OF 1
840.54

SHEET 1 OF 1
840.54

STATE OF NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

STATE OF NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.



PROPOSED STREET & SIDEWALK IMPROVEMENTS FOR


TOWN OF ELON

ELON, NORTH CAROLINA
BOONE STATION TOWNSHIP, ALAMANCE COUNTY, NC

alley, williams, carmen & king, inc.
ENGINEERS, ARCHITECTS & SURVEYORS

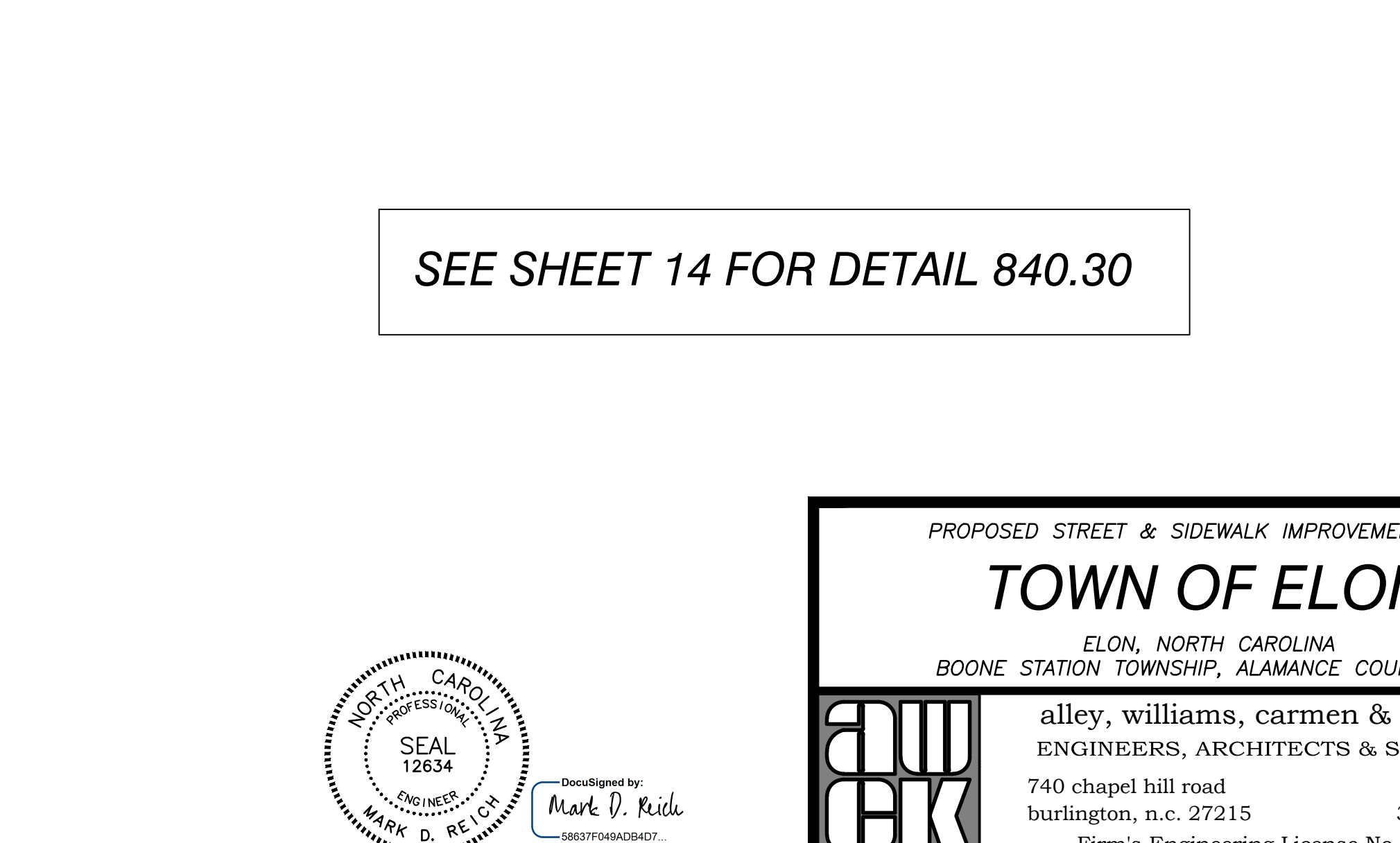
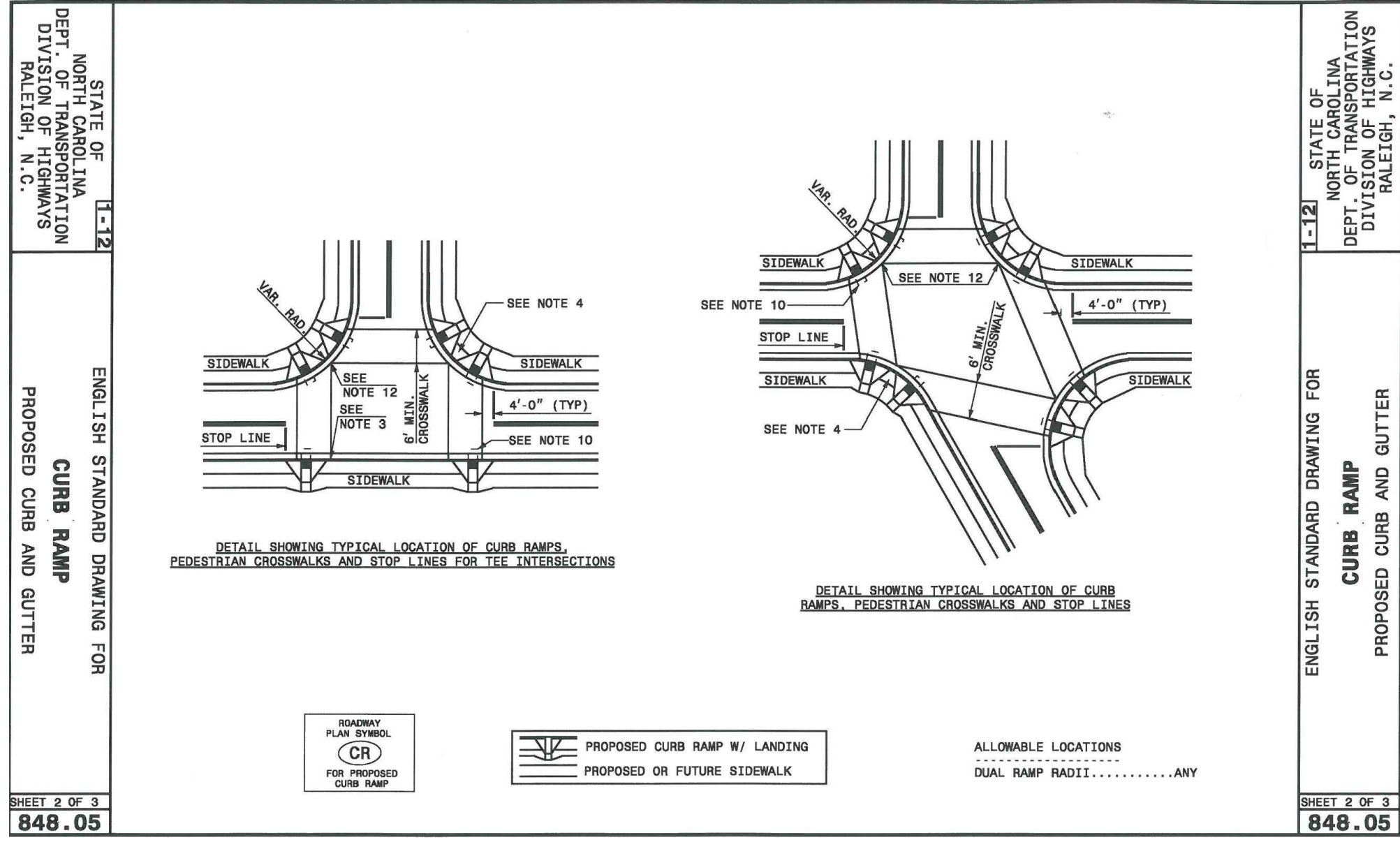
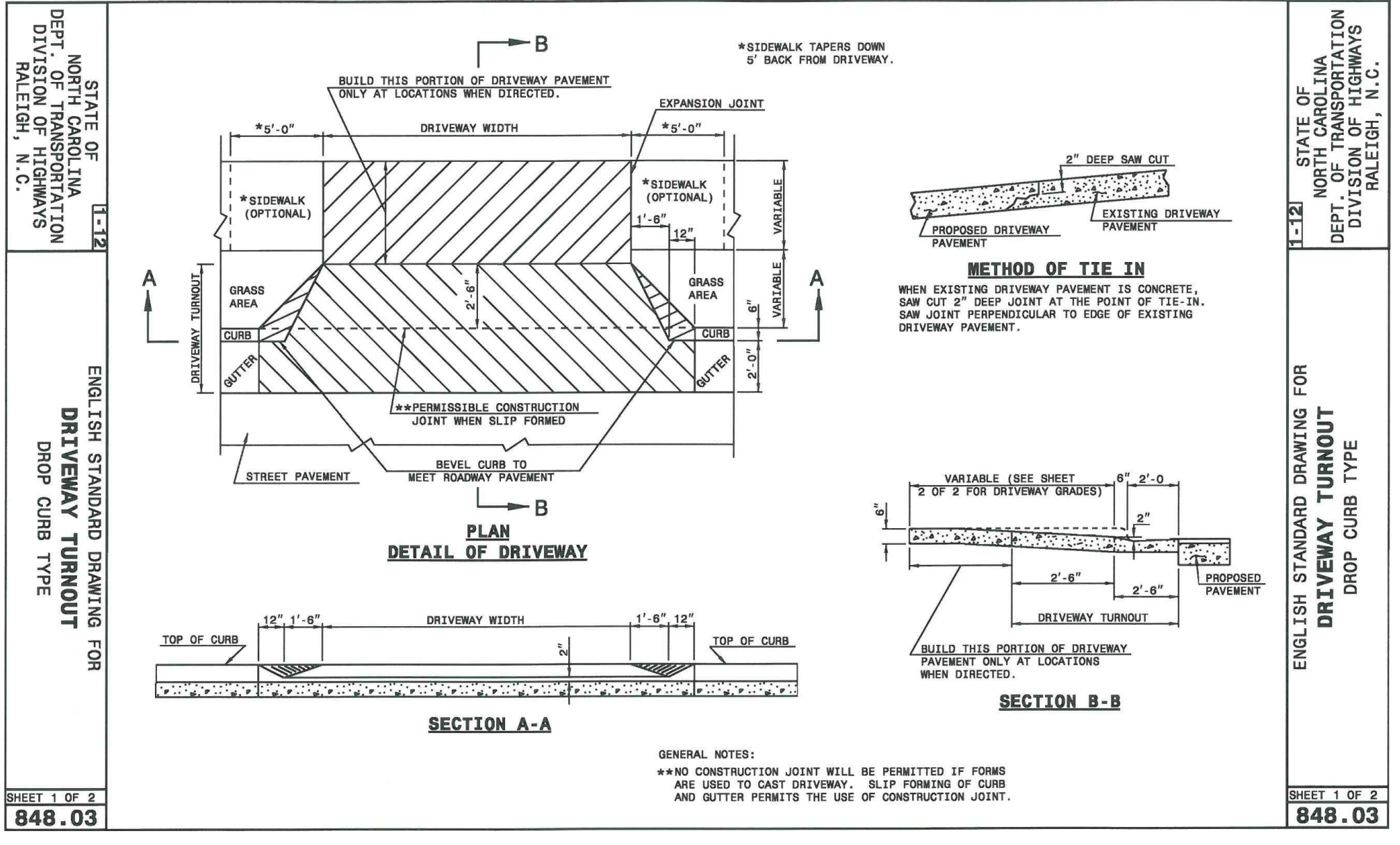
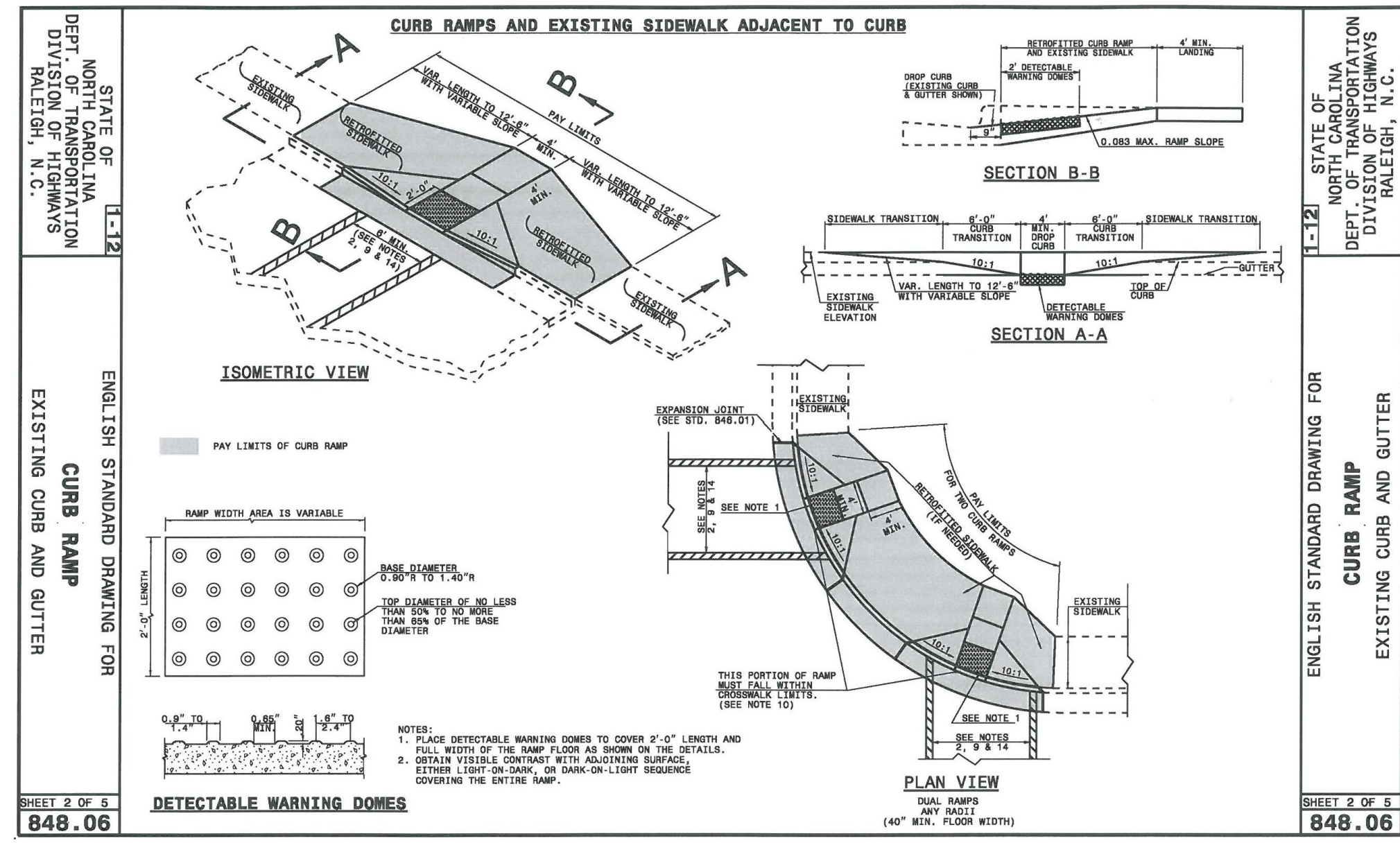
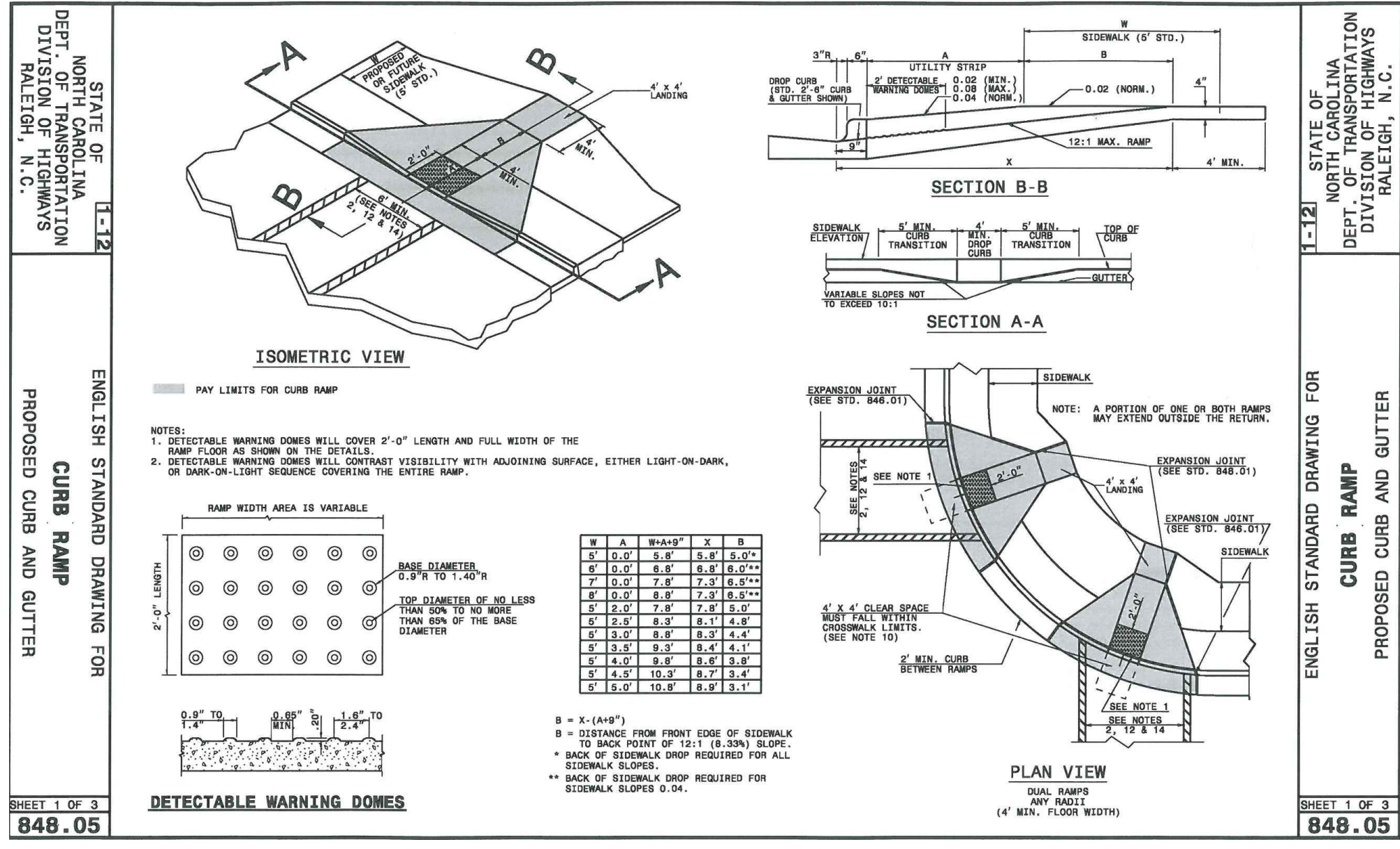
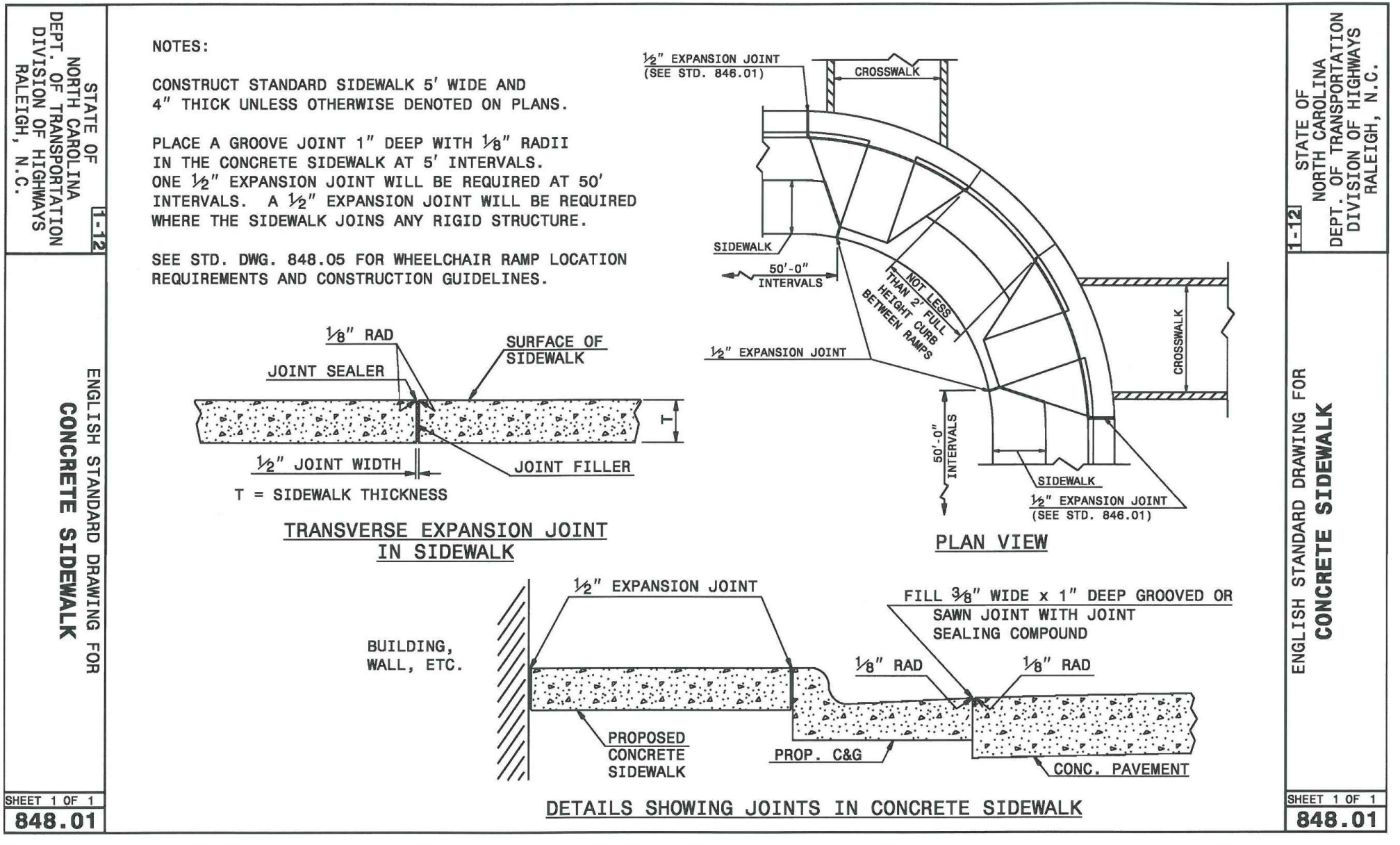
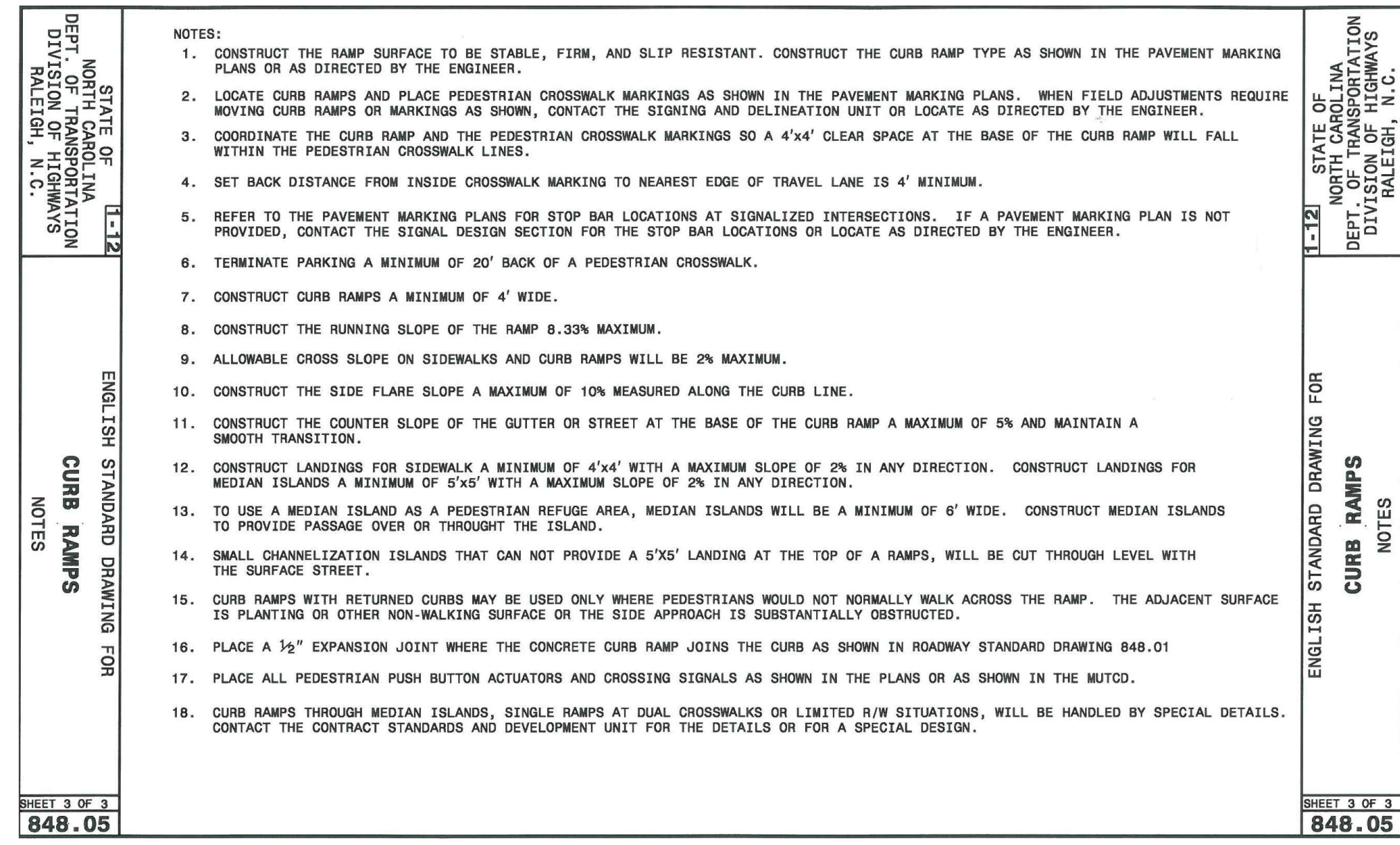
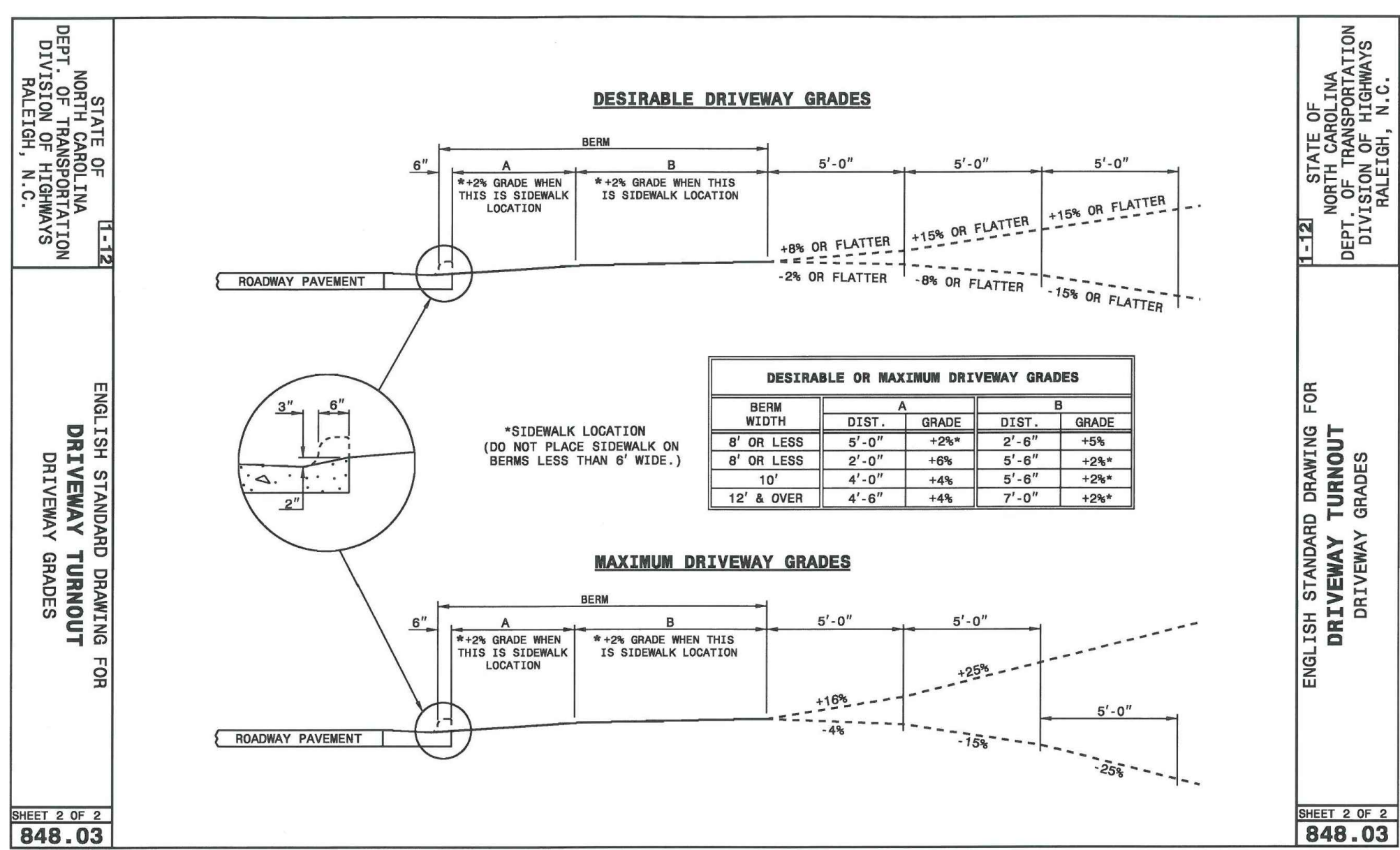
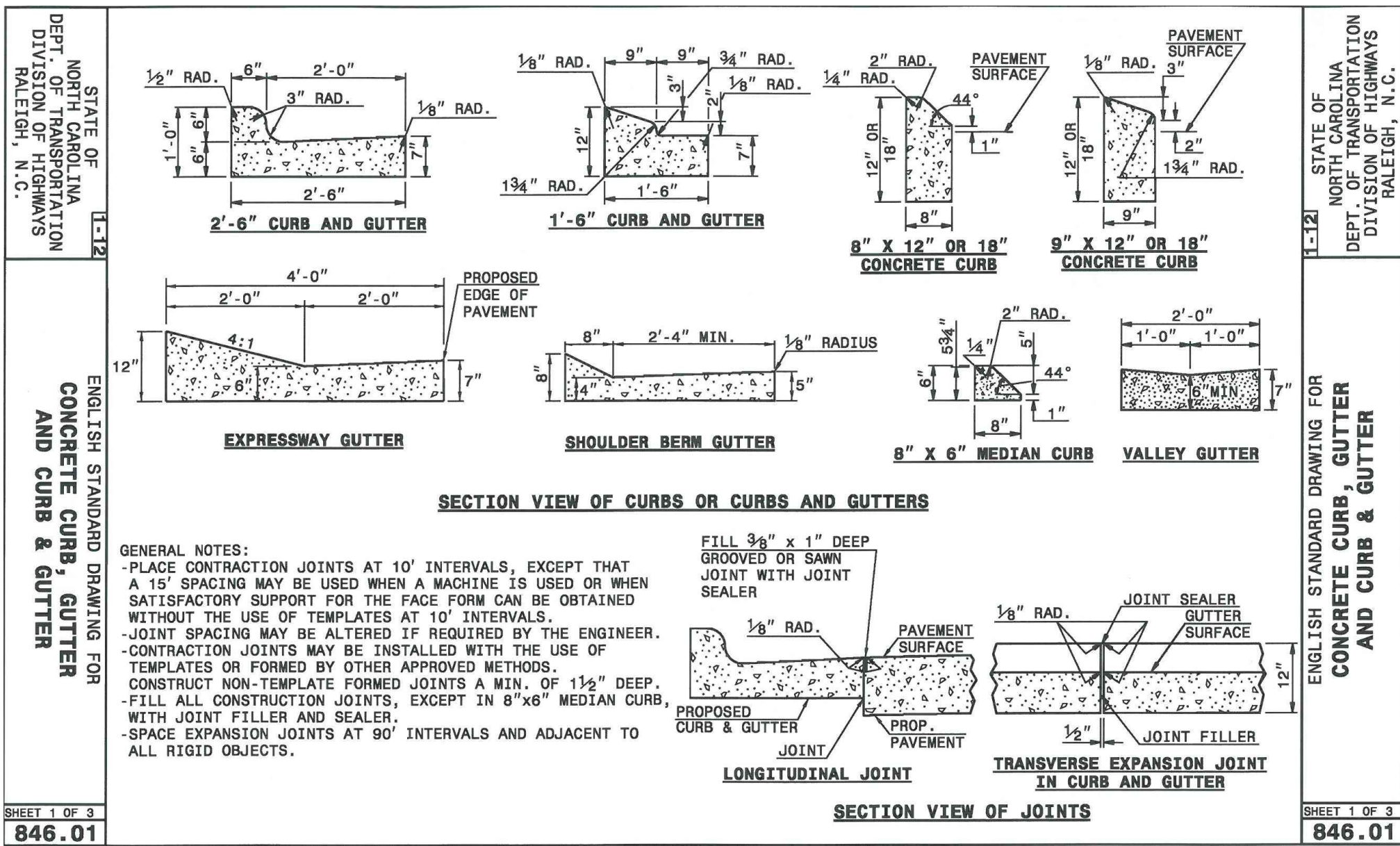
740 chapel hill road
burlington, n.c. 27215

p.o. box
336/226-



DocuSigned by:
Mark D. Reich
58637F049ACB4D7...

4/21/2015



SEE SHEET 14 FOR DETAIL 840.30

PROPOSED STREET & SIDEWALK IMPROVEMENTS FOR

TOWN OF ELON

ELON, NORTH CAROLINA
BOONE STATION TOWNSHIP, ALAMANCE COUNTY, NC

alley, williams, carmen & king, inc.
ENGINEERS, ARCHITECTS & SURVEYORS

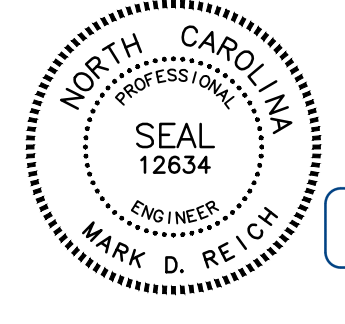
740 chapel hill road
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p.o. box 1179
336/226-5534

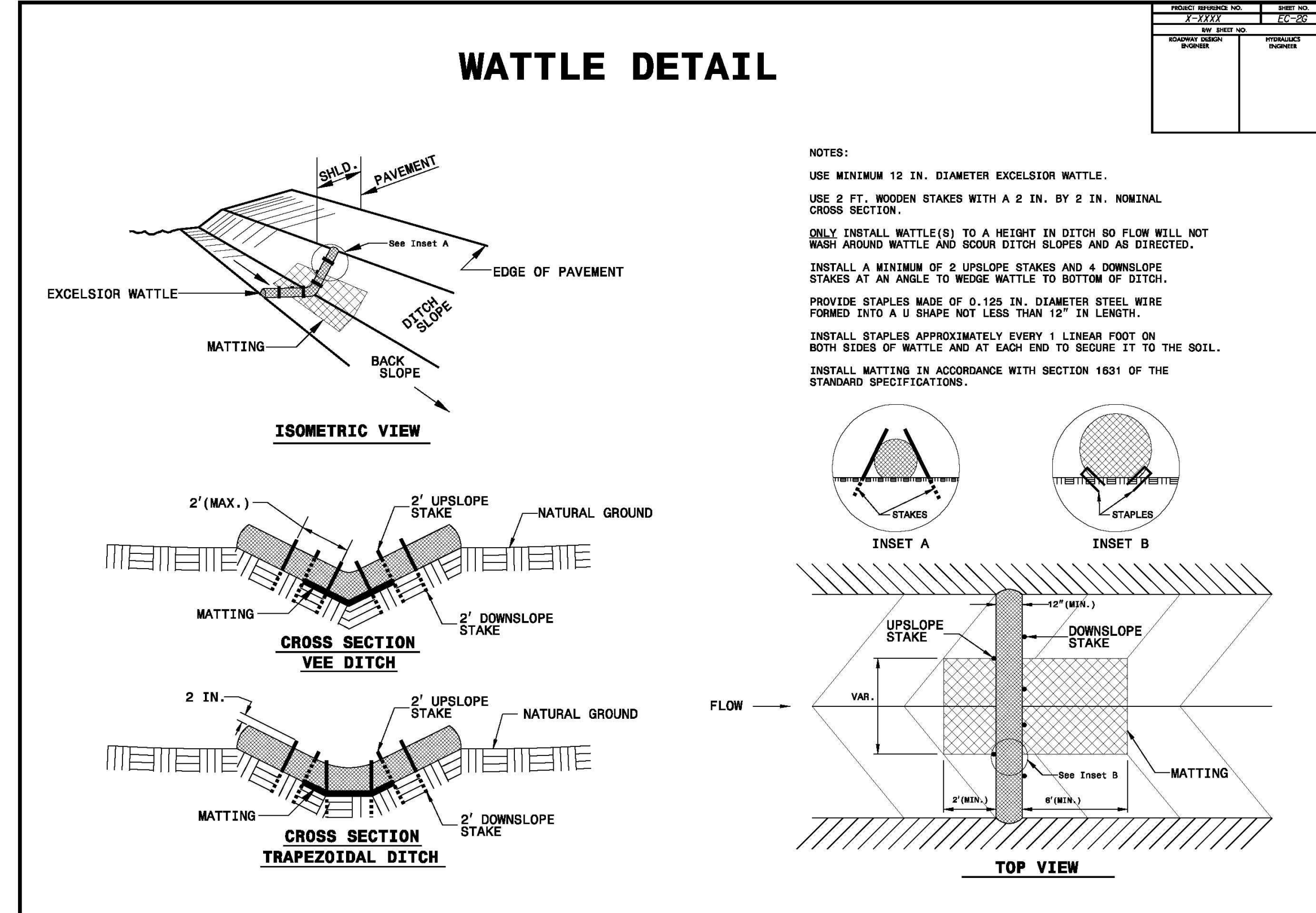
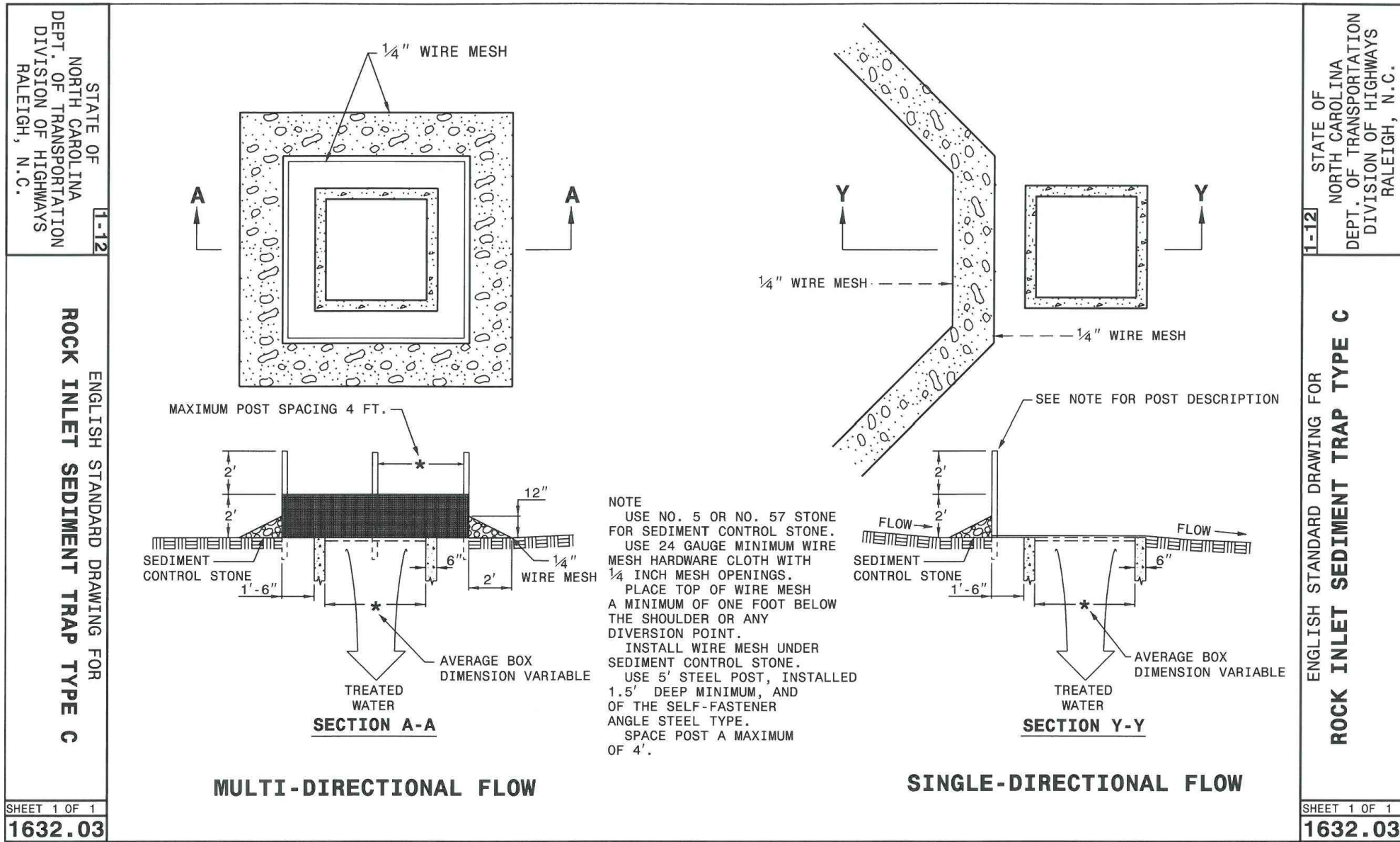
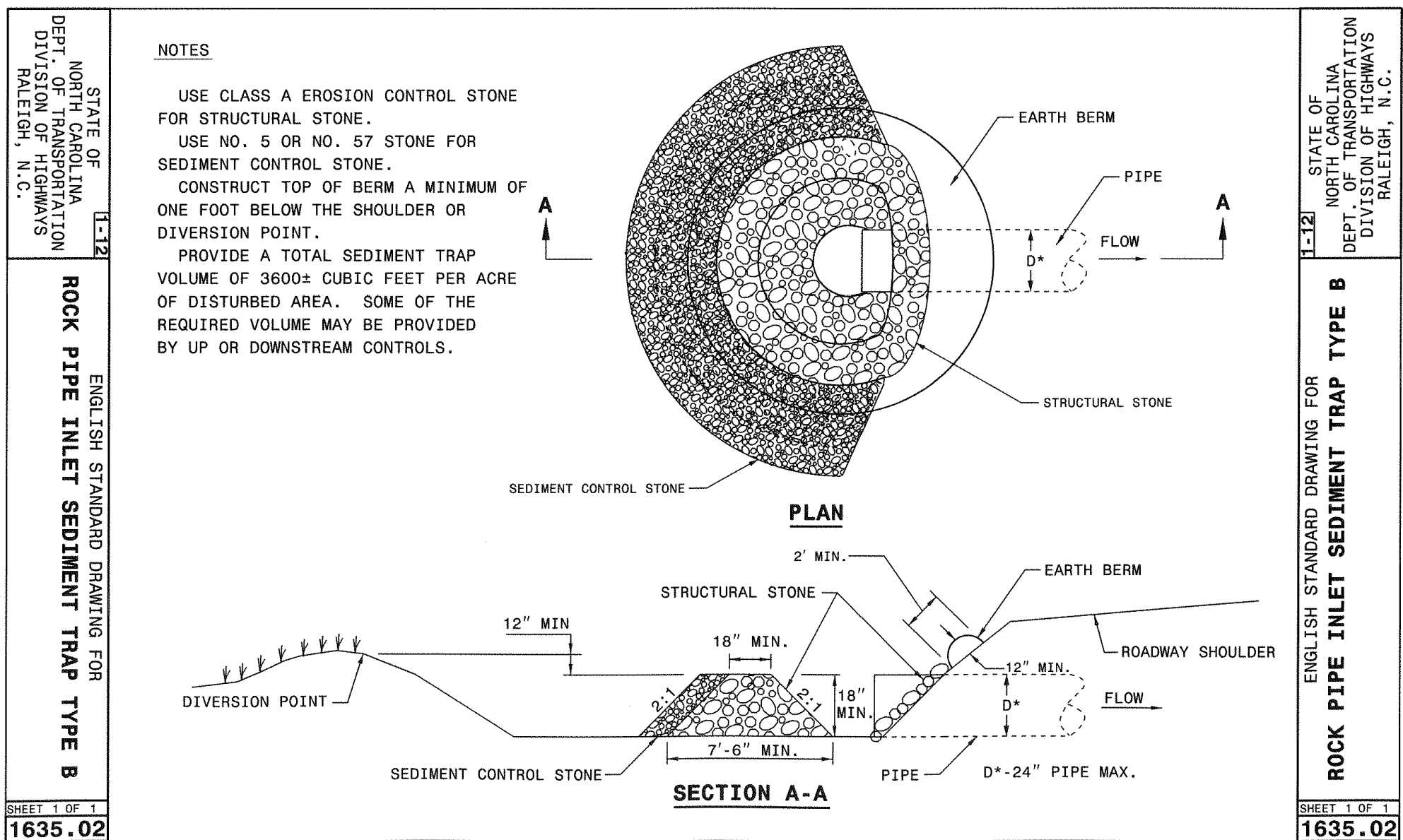
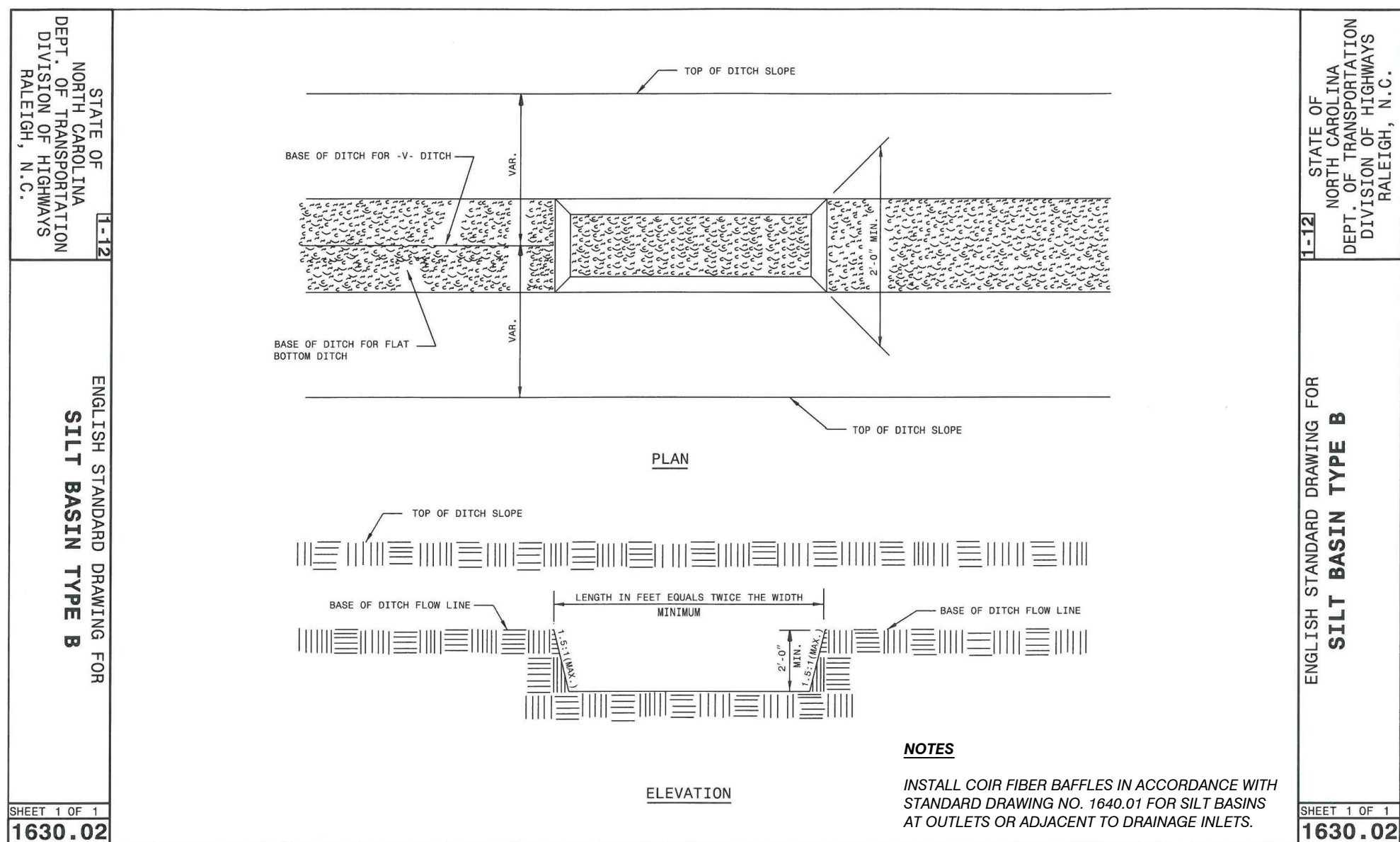
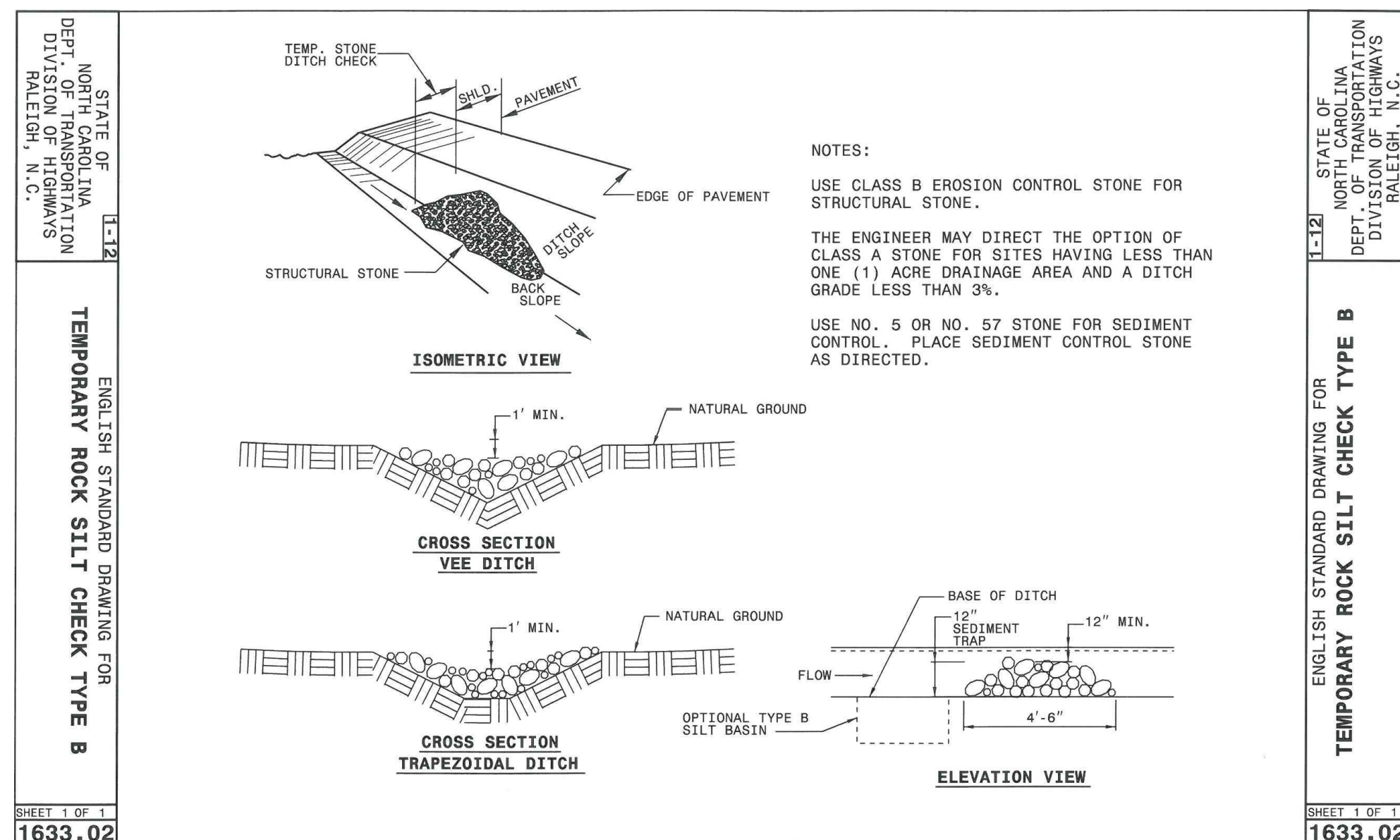
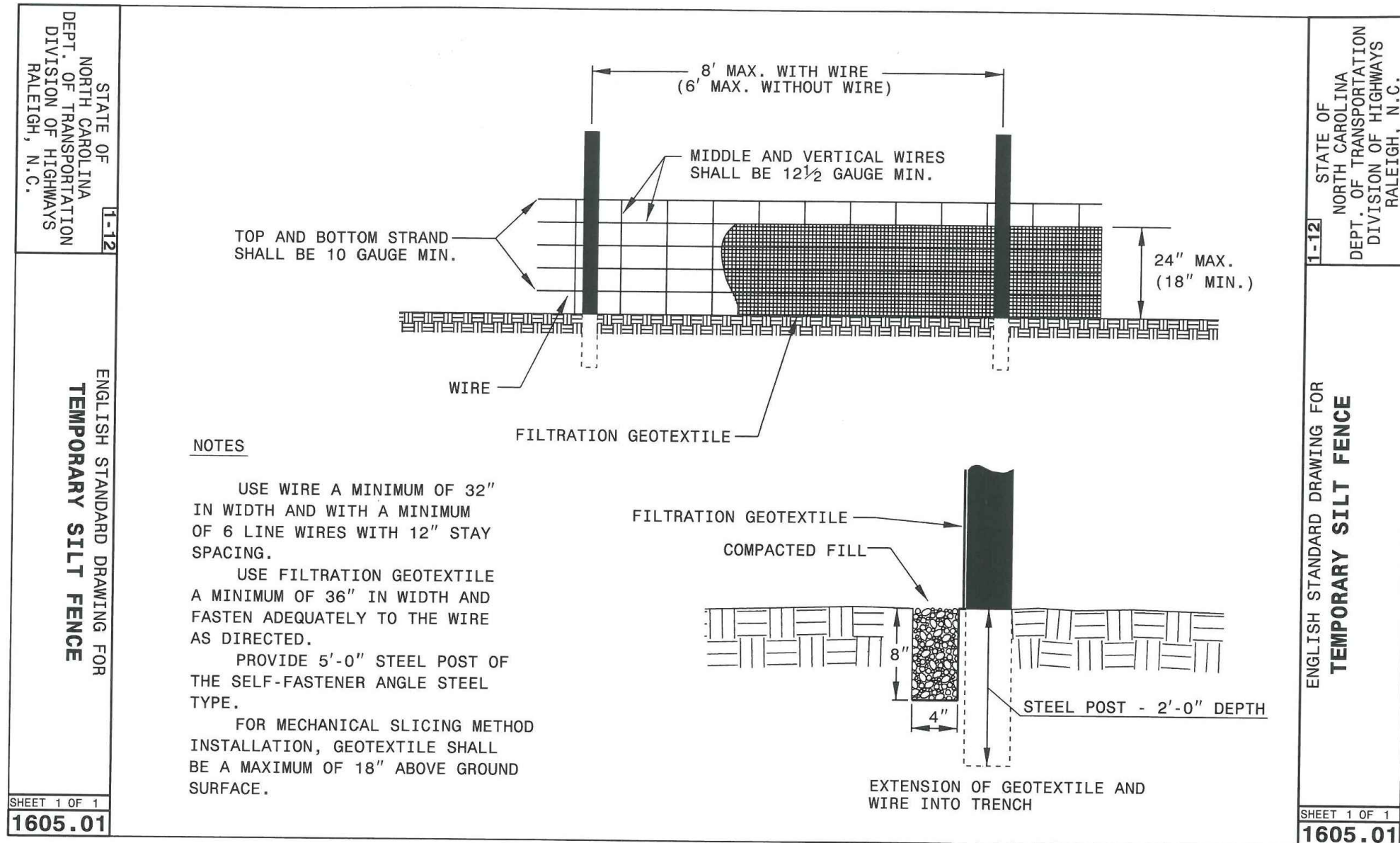
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DATE: 2/20/14
DRAWN BY: PLW
CHECKED BY: MDR

JOB NO. 12158
DWG NAME: 12158DETAILS.DWG
SHEET NO. 10



REVISED: 5/01/14 - NCDOT COMMENTS
REVISED: 4/16/15 - RELEASED FOR CONSTRUCTION



GENERAL EROSION CONTROL NOTES:

- ALL EROSION CONTROL MEASURES AND DEVICES SHALL BE INSTALLED AND MAINTAINED IN ACCORDANCE WITH NCDOT & NCDENR - LAND QUALITY SECTION "EROSION AND SEDIMENT CONTROL MANUAL" REQUIREMENTS.
- ALL SLOPES SHALL BE SEEDED AND MULCHED WITHIN 14 CALENDAR DAYS OF COMPLETION OF GRADING PHASE.
- REMOVE ANY MUD OR SOIL MATERIALS TRACKED ONTO ADJOINING ROADS IMMEDIATELY.
- PROVIDE ADDITIONAL MEASURES AS NEEDED TO DIRECT RUNOFF TO EROSION CONTROL DEVICES AS DIRECTED BY THE ENGINEER.
- INSPECT ALL EROSION CONTROL MEASURES ON A WEEKLY BASIS AND WITHIN 24 HOURS OF A 0.5 IN. RAINFALL EVENT (WITHIN A 24 HOUR PERIOD). CONTRACTOR SHALL REPAIR OR PROVIDE ANY REQUIRED MAINTENANCE NOTED DURING INSPECTION AND PRIOR TO CONTINUING WITH ANY CONSTRUCTION ACTIVITIES.
- CONTRACTOR SHALL PROVIDE A RAIN GAUGE ON SITE AND SHALL COMPLETE "STORMWATER INSPECTIONS FOR GENERAL PERMIT NCG010000 - LAND DISTURBING ACTIVITIES" FORM ON A WEEKLY BASIS. PROVIDE COPIES OF REPORT TO OWNER/ENGINEER ON A MONTHLY BASIS.
- ANY WASTE MATERIAL DISPOSED OF OFF-SITE SHALL BE DISPOSED OF TO A SITE APPROVED BY NCDENR, LQS.
- ANY BORROW MATERIAL SHALL BE OBTAINED FROM AN NCDENR, LQS APPROVED SITE.
- PROVIDE COPIES OF APPROVAL LETTERS FOR WASTE/BORROW SITES TO ENGINEER PRIOR TO DISPOSING OF OR OBTAINING MATERIAL FROM SITES.
- CONTRACTOR SHALL PROVIDE ENGINEER WITH A COPY OF THE CERTIFICATION OF ALL EMPLOYEES MAINTAINING AND INSTALLING EROSION CONTROL DEVICES.
- PROVIDE TYPE "C" ROCK INLET SEDIMENT TRAP PROTECTION (SEE NCDOT STD. DETAIL 1632.03) AT ALL CATCH BASINS/JUNCTION MANHOLES WHERE DISTURBED SOIL DRAINS TO A DRAINAGE STRUCTURE.
- PROVIDE WATTLES AROUND FRAME AND GRATE AT ALL CATCH BASINS AFTER TYPE "C" ROCK INLET IS REMOVED UNTIL VEGETATION ON SHOULDER IS ESTABLISHED.
- PROVIDE WATTLES IN GRASS LINED DITCHES AS DIRECTED BY THE ENGINEER TO ASSIST WITH ESTABLISHMENT OF PERMANENT VEGETATION. IN GENERAL, WATTLE SPACING SHALL BE 50' +/-

CONSTRUCTION SEQUENCE

- HOLD PRECONSTRUCTION CONFERENCE & CONTACT LOCATING SERVICE TO LOCATE ALL EXISTING UTILITIES PRIOR TO CONSTRUCTION.
- INSTALL STATIONARY WORK ZONE SIGNS.
- PROVIDE TYPE "B" ROCK PIPE INLET SEDIMENT TRAP (1635.02) AT INLET OF ALL EXISTING CULVERT PIPES, STA. 4+00; 5+35; AND 6+90.
- INSTALL TEMPORARY SILT FENCE AT TOE OF SLOPE, STA. 0+20 TO 2+65 +/-.
- REMOVE PORTION OF EXISTING 24" RCP AT CB NO. 1, INSTALL PROPOSED 24" RCP FROM CB NO. 1 TO JMH NO. 9 AND 18" RCP FROM JMH NO. 9 TO PIPE END NO. 10. INSTALL TYPE "B" ROCK PIPE INLET SEDIMENT TRAP (1635.02) AT UPPER END PIPE END NO. 10.
- CONSTRUCT CB NO. 1 AND JMH NO. 9. PROVIDE TYPE "C" ROCK INLET PROTECTION (1632.03) AT CB NO. 1.
- INSTALL STORM DRAIN PIPE FROM CB NO. 1 TO CB NO. 8. REMOVE EXISTING CULVERT PIPES AS ENCOUNTERED. PROVIDE TYPE "B" ROCK PIPE INLET PROTECTION (1635.02) AT UPPER END OF PIPE AT END OF EACH DAYS WORK. CONSTRUCT CB AND DI AS WORK PROGRESSES.
- PROVIDE TYPE "C" ROCK INLET PROTECTION (1632.03) UPON COMPLETION OF DRAINAGE STRUCTURE.
- REMOVE ANY REMAINING TOP SOIL AND VEGETATION FROM EDGE OF PAVEMENT TO C/F LINE. MATERIAL MAY BE STOCKPILED ADJACENT TO SILT FENCE AND MAY BE USED IN FILL SLOPE BEYOND WIDTH OF BERM.
- PROOFROLL SUBGRADE INCLUDING EXISTING DITCH LINES AND UNDERCUT ANY AREAS DEEMED UNACCEPTABLE BY ENGINEER. USE BORROW MATERIAL OR ABC STONE BASE TO STABILIZE AREAS AS DIRECTED BY THE ENGINEER.
- CONSTRUCT SHOULDER & FILL SLOPES.
- TRENCHING FOR BASE COURSE SHALL BE DONE SUCH THAT ALL EXCAVATED MATERIALS ARE REPLACED WITH 4" ASPHALT BASE COURSE AND THE DROP OFF EDGE ARE REPAIRED PRIOR TO REMOVAL OF LANE CLOSURE & NORMAL 2-WAY TRAVEL RESTORED. POSITIVE DRAINAGE AWAY FROM PAVEMENT TO BE MAINTAINED AT ALL TIMES.
- INSTALL CURB & GUTTER AND DRIVEWAYS. STAGE CONSTRUCT OF DRIVEWAYS TO PROVIDE INGRESS & EGRESS TO RESIDENTS OR MAKE ACCEPTABLE ARRANGEMENTS WITH PROPERTY OWNERS. PROVIDE WATLES AROUND FRAME AND GRATE AND SECURE TO FRAME AND GRATE.
- BACKFILL CURB & GUTTER & COMPLETE CONSTRUCTION OF BERM & FILL SLOPE..
- INSTALL INTERMEDIATE ASPHALT COURSE (D1) & BOTTOM LAYER OF SURFACE COURSE (C1) BETWEEN EDGE OF PAVEMENT AND CURB & GUTTER.
- INSTALL CONCRETE SIDEWALK & DRIVEWAYS.
- FINE GRADE SHOULDERS TO TYPICAL SECTIONS OR AS DIRECTED BY THE ENGINEER. SEED & MULCH SHOULDERS AND DISTURBED AREAS BETWEEN CURB & SILT FENCE.
- ONCE ADEQUATE GROUND COVER IS ESTABLISHED, REMOVE SILT FENCE AND WATTLES. FENCE AND REPAIR SEED THE AREAS DISTURBED DURING PROCESS OF FENCE REMOVAL. INSTALL RIP-RAP AT INLET TO PIPE END NO. 10 AS DIRECTED BY ENGINEER.
- REPAIR SEED ANY AREA PREVIOUSLY SEEDED & MULCHED AND WHERE ADEQUATE VEGETATION HAS NOT BEEN ESTABLISHED AS DIRECTED BY THE ENGINEER.

SEE PROJECT SPECIAL PROVISIONS FOR SEEDING/MULCHING REQUIREMENTS



DocuSigned by:
Mark D. Reich
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4/21/2015

REVISED : 4/16/15 - RELEASED FOR CONSTRUCTION

PROPOSED STREET & SIDEWALK IMPROVEMENTS FOR

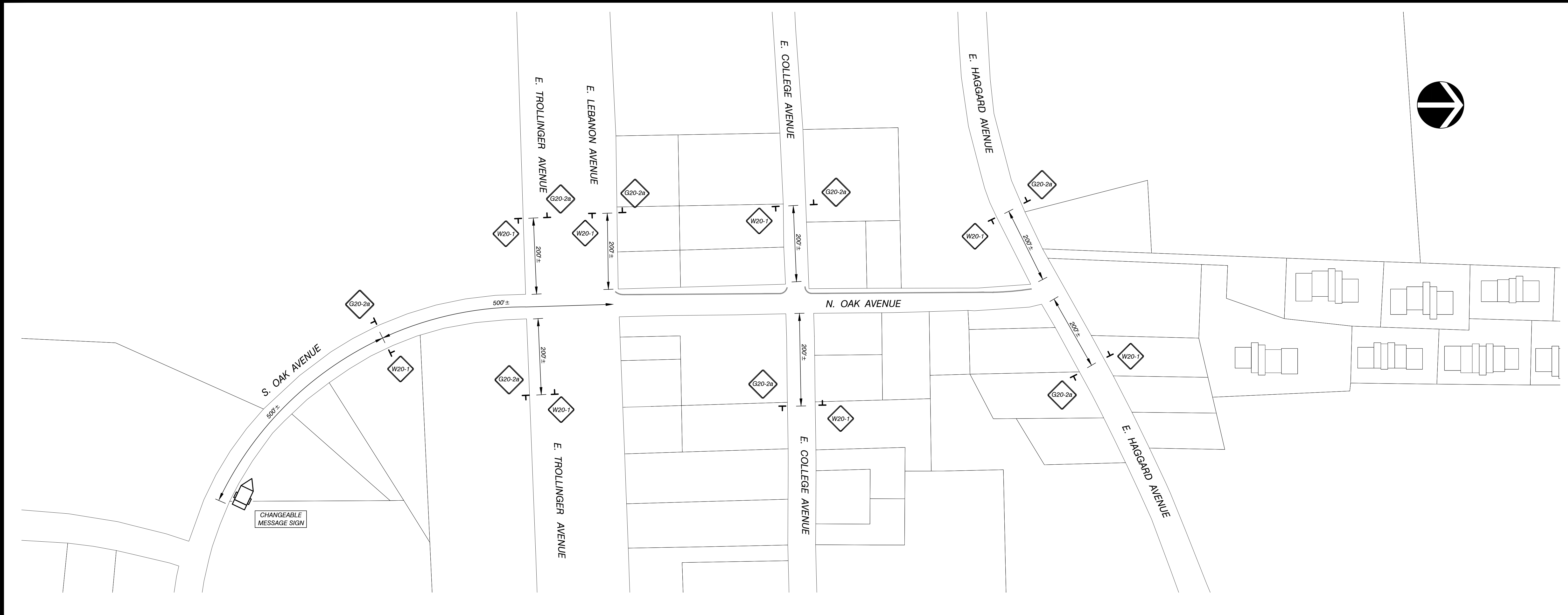
TOWN OF ELON

ELON, NORTH CAROLINA
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burlington, n.c. 27215 336/226-5534
Firm's Engineering License No. F-0203

DATE: 2/20/14
DRAWN BY: PLW
CHECKED BY: MDR

JOB NO. 12158
DWG NAME: 12158DETAILS.DWG
SHEET NO. 11
of 14



OVERALL MAP

SCALE: 1" = 100'

GENERAL TRAFFIC CONTROL NOTES

- CONTRACTOR SHALL PROVIDE TRAFFIC CONTROL IN ACCORDANCE WITH ALL NCDOT AND MUTCD SPECIFICATIONS AND REQUIREMENTS.
- CHANGES MAY BE REQUIRED WHEN PHYSICAL DIMENSIONS IN DETAIL DRAWINGS, STANDARD DETAILS AND ROADWAY DETAILS ARE NOT ATTAINABLE TO MEET FIELD CONDITIONS, OR RESULT IN DUPLICATE, OR UNDESIRABLE OVERLAPPING OF DEVICES. MODIFICATION MAY INCLUDE: MOVING, SUPPLEMENTING, COVERING OR REMOVAL OF DEVICES, AS DIRECTED BY THE ENGINEER.
- CONTRACTOR SHALL PROVIDE STATIONARY WORK ZONE SIGNS (ROAD CONSTRUCTION AHEAD AND END CONSTRUCTION) AS SHOWN ON TRAFFIC CONTROL PLAN OR AS DIRECTED BY ENGINEER.
- INSTALL STATIONARY ADVANCE WORK ZONE WARNING SIGNS A MINIMUM OF 3 DAYS PRIOR TO BEGINNING WORK.
- FLAGGERS SHALL BE CERTIFIED IN WORK ZONE TRAFFIC CONTROL OPERATIONS.
- PROVIDE CHANGEABLE MESSAGE SIGNS ON EACH END OF PROJECT AS SHOWN ON THE TRAFFIC CONTROL PLAN. MESSAGE SHALL BE AS DIRECTED BY ENGINEER & REVISED PERIODICALLY AS DIRECTED BY ENGINEER.
- THE CONTRACTOR SHALL ALSO COMPLY WITH ANY AND ALL CONDITIONS STATED IN THE APPROVED ENCROACHMENT/DRIVEWAY PERMIT FOR THE PROJECT.
- THE CONTRACTOR SHALL CONTACT THE NCDOT DISTRICT ENGINEER'S OFFICE AT (336) 570-6833 TO SCHEDULE A PRECONSTRUCTION CONFERENCE PRIOR TO THE START OF ANY CONSTRUCTION WITHIN NCDOT RIGHT OF WAY.
- THE CONTRACTOR SHALL INSPECT THE PROJECT WITH THE NCDOT AND PROJECT ENGINEERS INSPECTOR PRIOR TO BEGINNING ANY WORK. ANY DAMAGED AREAS SHALL BE PHOTOGRAPHED AND DOCUMENTED BY THE CONTRACTOR.
- THE NCDOT DISTRICT ENGINEER'S OFFICE SHALL ALSO BE CONTACTED PRIOR TO ANY BLASTING THAT IS TO TAKE PLACE WITHIN OR ADJOINING THE NCDOT RIGHT OF WAY.

LANE AND SHOULDER CLOSURE REQUIREMENTS

- REMOVE LANE CLOSURE DEVICES FROM THE LANE WHEN WORK IS NOT BEING PERFORMED BEHIND THE LANE CLOSURE OR WHEN A LANE CLOSURE IS NO LONGER NEEDED, OR AS DIRECTED BY THE ENGINEER.
- WHEN WORKING WITHIN 8 FEET OF FACE OF CURB, OR 10' OF EDGE OF PAVEMENT, CONTRACTOR WILL BE ALLOWED TO CLOSE ADJACENT TRAVEL LANE, PROVIDED TRAFFIC CONTROL IS MAINTAINED IN ACCORDANCE WITH EITHER METHOD A, B OR C AS FOLLOWS:
 - SKINNY DRUMS ARE USED TO PROVIDE 2 TRAVEL LANES, ONE IN EACH DIRECTION WITH A MINIMUM LANE WIDTH OF 10' EACH AND 10 FEET OF CLEARANCE BETWEEN TRAVEL LANE AND WORK ZONE.
 - PROVIDE FLAGGERS AND SHIFT TRAFFIC TO OPPOSITE LANE PER NCDOT STANDARDS.
 - CONTRACTOR PROVIDES WATER FILLED OR CONCRETE BARRIERS IMMEDIATELY ADJACENT TO THE WORK ZONE AREA AS DIRECTED BY THE ENGINEER.CONTRACTOR SHALL PROVIDE PERSONNEL AND EQUIPMENT FOR EITHER METHOD A, B OR C IN ACCORDANCE WITH NCDOT STANDARDS, INCLUDING ALL PORTABLE SIGNS.
- PROVIDE PORTABLE TRAFFIC CONTROL SIGNS AND CHANNELIZING DEVICES TO SHIFT TRAFFIC AS SHOWN ON STANDARD DRAWING 1101.02 OR AS DIRECTED BY THE ENGINEER.
- SPACE CHANNELIZING DEVICES IN WORK AREA AT 40 FT MAX ON CENTER IN TANGENT SECTIONS AND 10 FT MAX ON CENTER IN RADIUS SECTIONS. CHANNELIZING DEVICES SHALL BE AT LEAST 3 FT OFF EDGE OF AN OPEN TRAVEL WAY WHEN LANE CLOSURES ARE NOT IN EFFECT.

PAVEMENT EDGE DROP OFF REQUIREMENTS

- BACKFILL AT A 6:1 SLOPE UP TO THE EDGE AND ELEVATION OF THE EXISTING PAVEMENT WHERE THE DROP OFF EXCEEDS 2 INCHES. BACKFILL MATERIAL SHALL BE COMPACTED AND APPROVED BY THE ENGINEER AS SUITABLE MATERIAL FOR THE INTENDED PURPOSE. BACKFILL MATERIAL SHALL BE PROVIDED BY THE CONTRACTOR AT NO EXPENSE TO THE OWNER. WHEN DIRECTED BY THE ENGINEER, THE CONTRACTOR SHALL PROVIDE ABC STONE BASE AND WILL BE PAID FOR AT THE CONTRACT UNIT PRICE FOR INCIDENTAL STONE.

DENOTES STATIONARY TRAFFIC CONTROL SIGN

SIGN SUMMARY

STATIONARY SIGNS

TYPE	DESCRIPTION	SIZE	QUANTITY
W20-1	ROAD WORK AHEAD	48" X 48"	8
G20-2a	END ROAD WORK	48" X 24"	8

CONTRACTOR SHALL PROVIDE ALL OTHER REQUIRED SIGNAGE IN ACCORDANCE WITH NCDOT REQUIREMENTS TO TEMPORARILY CLOSE TRAVEL LANES ADJACENT TO WORK ZONE.

TRAFFIC CONTROL WORK RESTRICTIONS

LANE CLOSURES WILL NOT BE ALLOWED BETWEEN 7:00 AM - 9:00 AM AND FROM 4:00 PM - 7:00 PM, MONDAY THRU FRIDAY, UNLESS OTHERWISE APPROVED BY THE ENGINEER.



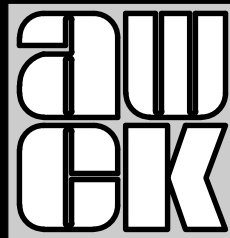
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Mark D. Reich
586337D48AD84D7...
4/21/2015

REVISED : 4/16/15 - RELEASED FOR CONSTRUCTION

PROPOSED STREET & SIDEWALK IMPROVEMENTS FOR

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DATE:
2/19/14
DRAWN BY:
PLW
CHECKED BY:
MDR

TRAFFIC CONTROL PLAN

JOB NO.
12158
DWG NAME: 12158TRAFFIC.DWG
SHEET NO.

12
of 14

STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C.

ENGLISH STANDARD DRAWING FOR TRAFFIC CONTROL DESIGN TABLES "L" DISTANCE AND CHANNELIZING DEVICE TAPER CRITERIA

EXAMPLE OF "L" & "W" DESIGNATIONS

TAPER LENGTH CRITERIA FOR CHANNELIZING DEVICES IN WORK ZONES

QUICK REFERENCE - "L" DISTANCE TABLE

GENERAL NOTES

1. TABLE FOR "L" DISTANCE IS BASED ON CHANNELIZING TAPER FORMULA FROM THE N.U.T.C.D. WHERE:

2. "L" DISTANCE IS FOR APPLICATION WITH CHANNELIZING DEVICES AND PAVEMENT MARKING TAPERS AND TRANSITING. CHANNELIZING DEVICES INCLUDE DRUMS, CONES, TUBULAR MARKERS, BARRICADES, RAISED ASPHALT ISLANDS, AND VERTICAL PANELS.

1101.11

STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C.

ENGLISH STANDARD DRAWING FOR TRAFFIC CONTROL DESIGN TABLES SPACING OF TEMPORARY SIGNS IN SERIES

ADVANCE WARNING SIGN SPACING CHART

STATIONARY OR PORTABLE SIGNS

GENERAL NOTES

1. REFER TO 2000 MUTCD.

2. USE THIS STANDARD DRAWING IN CONJUNCTION WITH OTHER TRAFFIC CONTROL ROADWAY STANDARD DRAWINGS WHERE SIGN SPACING DISTANCES A, B, C, ARE SPECIFIED.

3. APPLY THE ADVANCE WARNING SIGN SPACING CHART WHERE A SERIES OF 2 OR MORE SIGNS ARE USED. ALL SIGN SPACING DIMENSIONS ARE APPROXIMATE. FIELD ADJUST AS VARIOUS CONDITIONS OCCUR, SUCH AS LIMITED SIGHT DISTANCE, OBSTRUCTION INTERFERENCE, ETC.

1101.11

STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C.

ENGLISH STANDARD DRAWING FOR DETAIL DRAWING FOR TWO-WAY UNDIVIDED ROADWORK ZONE WARNING SIGNS

TWO-WAY UNDIVIDED (L-LINES)

ROADWAYS INTERSECTING ALONG 2-WAY UNDIVIDED WORK ZONE (Y-LINES)

GENERAL NOTES

1. USE FLUORESCENT ORANGE SHEETING (TYPE VII OR HIGHER) ON ALL ADVANCED WORK ZONE SIGNS.

2. DO NOT INSTALL ADVANCE WARNING SIGNS MORE THAN 3 DAYS PRIOR TO BEGINNING OF WORK, UNLESS COVERED.

3. SIGNS SHOWN ARE REQUIRED FOR WORK ZONES THAT WILL REMAIN IN EFFECT OVERNIGHT. FOR SHORT TERM DAILY MAINTENANCE TYPE OPERATIONS, THIS SIGNING APPLICATION IS OPTIONAL; MAY USE ONLY APPLICABLE ROADWAY STANDARD DRAWINGS INSTEAD. HOWEVER, IF THIS SIGNING APPLICATION IS USED, SIGNS MAY BE PORTABLE MOUNTED.

4. ALL SIGN SPACING DIMENSIONS ARE APPROXIMATE, FIELD ADJUST AS NECESSARY OR AS DIRECTED.

5. USE 3LB STEEL U-CHANNEL POST OR 4" X 4" WOOD POST FOR ALL WORK ZONE SIGNS. 3LB STEEL U-CHANNEL POSTS MUST MEET THE REQUIREMENTS OF STANDARD SPECIFICATION SECTION 1004-1 (B). MAY BE GALVANIZED STEEL, OR MAY BE PAINTED GREEN BY THE POST MANUFACTURER. SQUARE STEEL TUBING POSTS HAVING EQUIVALENT STRENGTH OF THE 3 LB STEEL U-CHANNEL POST ARE ALSO ACCEPTABLE FOR USE. DIRECT SIGNS PER ROADWAY STANDARD DRAWING 1110.01. PAYMENT FOR WOOD POSTS, 3LB STEEL U-CHANNEL AND SQUARE STEEL TUBING POSTS WITH SIGNS WILL BE MADE ACCORDING TO STANDARD SPECIFICATION "WORK ZONE SIGNS" SECTION 1110.

6. WHEN NECESSARY, USE SPLICING IN ACCORDANCE WITH ROADWAY STANDARD DRAWING NO. 1110.01.

7. DO NOT BACK BRACE SIGN SUPPORTS.

1101.01

STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C.

ENGLISH STANDARD DRAWING FOR TRAFFIC CONTROL DESIGN TABLES BUFFER SPACE & SIGHT DISTANCE

MINIMUM SIGHT DISTANCE TABLE

GENERAL NOTES

1. TABLES ARE BASED ON THE ASHUTO GREEN BOOK "A POLICY ON GEOMETRIC DESIGN OF HIGHWAYS AND STREETS" AND THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES". MINIMUM SIGHT DISTANCE VALUES ARE FOR PASSENGER CAR VEHICLES ON WET AND LEVEL ROADWAYS. CONSULT THE ASHUTO GREEN BOOK TO MAKE FINAL DETERMINATION OF STOPPING SIGHT DISTANCE REQUIREMENTS.

2. BUFFER SPACE TABLE IS BASED ON THE BRAKING DISTANCE PORTION OF STOPPING SIGHT DISTANCE FOR WET AND LEVEL PAVEMENTS.

3. USE OF STOPPING SIGHT DISTANCE IN TRAFFIC CONTROL PLAN APPLICATIONS INCLUDES PROVIDING SIGHT DISTANCE FOR TRAFFIC APPROACHING A LANE CLOSURE. PROVIDE 2-LANE, 2-WAY ROADWAYS STOPPING SIGHT DISTANCE TO THE FLAGGER, FOR LANE CLOSURES ON MULTILANE ROADWAYS PROVIDE STOPPING SIGHT DISTANCE TO THE BEGINNING OF THE LANE CLOSURE BEHIND TAPER, ON FLAGGING ARROW ROAD. EXTEND LANE CLOSURES AT THE BUFFER SPACE SUCH THAT STOPPING SIGHT DISTANCE IS PROVIDED.

4. USE OF MINIMUM PASSING SIGHT DISTANCE TABLE IN TRAFFIC CONTROL PLAN APPLICATIONS INCLUDES PROVIDING SIGHT DISTANCE REQUIREMENTS FOR PLACEMENT OF PAVEMENT MARKING PASSING-PASSING ZONES FOR 2-LANE, 2-WAY ROADWAYS.

1101.11

STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C.

ENGLISH STANDARD DRAWING FOR STATIONARY WORK ZONE SIGNS MOUNTING HEIGHT & LATERAL CLEARANCE

LATERAL CLEARANCE

ASSEMBLY DETAIL

GENERAL NOTES

1. DIMENSIONS SHOWN ARE MINIMUM VALUES. WHEN SIGNS ARE MOUNTED BEHIND TRAFFIC CONTROL DEVICES SUCH AS DRUMS, BARRIERS, OR OTHER OBJECTS THAT OBSTRUCT THEIR VISIBILITY, MOUNT THE SIGNS AT AN APPROPRIATE HEIGHT SUCH THAT THEY ARE CLEARLY VISIBLE TO APPROACHING TRAFFIC.

2. MOUNT SIGNS THAT ARE LARGER THAN 10 SQUARE FEET IN AREA ON TWO OR MORE WOOD OR U-CHANNEL SUPPORTS. PERFORATED SQUARE TUBING SUPPORT SYSTEMS SUPPORT LARGER AREAS ON A SINGLE SUPPORT. FOLLOW MANUFACTURER'S RECOMMENDATIONS. THESE SYSTEMS SHALL BE NCHRP 350 COMPLIANT AND NCOT APPROVED.

3. SEE STANDARD SPECIFICATION 1089-1 FOR WORK ZONE SIGNS.

4. SEE STANDARD SPECIFICATION 1089-2 FOR WORK ZONE SIGN SUPPORTS.

5. SEE ROADWAY STANDARD DRAWING 903.20 FOR WOOD POSTS.

6. SEE STANDARD SPECIFICATION 903-1 FOR WOOD SUPPORTS.

1110.01

STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C.

ENGLISH STANDARD DRAWING FOR TEMPORARY LANE CLOSURES 2-LANE, 2-WAY ROADWAY - 1 LANE CLOSED

INSET FOR 2 LANE ROADWAYS WITH 2-WAY TURN LANE

GENERAL NOTES FOR FLAGGER OPERATIONS

1. REFER TO STD. 1101.11 SHEET 4 FOR SIGN SPACING.

2. INSTALL LANE CLOSURES WITH THE TRAFFIC FLOW, BEGINNING WITH DEVICES ON THE DOWNSTREAM SIDE OF THE CLOSURE.

3. REMOVE LANE CLOSURES AGAINST THE TRAFFIC FLOW, BEGINNING WITH DEVICES ON THE DOWNSTREAM SIDE OF TRAFFIC.

4. PLACE CONES THRU THE WORK AREA AT THE MAXIMUM SPACING EQUAL IN FEET TO 2 TIMES THE POSTED SPEED LIMIT.

5. EXTEND LANE CLOSURES AT THE BUFFER SPACE SUCH THAT STOPPING SIGHT DISTANCE IS PROVIDED TO THE FLAGGER (REFER TO STD. 1101.11 SHEET 3).

6. DO NOT STOP TRAFFIC IN ANY ONE DIRECTION FOR MORE THAN 5 MINUTES AT A TIME.

7. DRUMS OR SKYWAY-DRUMS MAY BE USED IN LIEU OF CONES. REFER TO ROADWAY STANDARD DRAWING 1100.01 FOR SKYWAY-DRUM REQUIREMENTS.

8. USE FLAGGERS TO CONTROL TRAFFIC AT INTERSECTIONS AFFECTED BY THE LANE CLOSURE. FLAGGERS SHOULD BE PLACED AT INTERSECTIONS WITH FLAGGING ARROW ROAD (AND-1) INTERSECTIONS. PLACE FLAGGERS IN ADVANCE OF THE FLAGGERS AND SIGNALS TO PERMIT ACCESS TO THE HOLES FOR THE BREAKAWAY SYSTEM. ONCE THE BREAKAWAY SYSTEM IS TIGHTENED, REPLACE THE SOIL AND TAMP.

9. REFER TO 2000 MUTCD, CHAPTER 6, FOR FLAGGER CONTROL, REQUIREMENTS, AND PROCEDURES.

10. DO NOT EXCEED A 1 MILE LANE CLOSURE LENGTH UNLESS OTHERWISE SHOWN IN THE TWP OR AS DIRECTED BY THE ENGINEER.

GENERAL NOTES FOR PILOT CAR OPERATIONS

1. USE PILOT CARS WHEN DIRECTED BY THE ENGINEER.

2. IF ROADWAY WIDTH IS LESS THAN 52 FEET (50' TO 52' CONES AND SIGNS MAY BE REQUIRED) THE WORK ZONE OF USING A PILOT CAR (ON THE ENGINEER'S CONE) MAY BE REQUIRED ALONG THE WORK ZONE.

3. CONES ARE ALWAYS REQUIRED IN THE UPSTREAM AND DOWNSTREAM TAPERS.

4. MOUNT SIGN 800-4 "PILOT CAR FOLLOW ME" AT A CONSPICUOUS POSITION ON THE REAR OF THE PILOT VEHICLE.

5. DO NOT INSTALL MORE THAN ONE (1) MILE OF LANE CLOSURE, MEASURED FROM THE BEGINNING OF THE LANE CLOSURE.

6. ADVISE RESIDENTS AND BUSINESSES WITHIN THE LANE CLOSURE LIMITS ABOUT METHODS OF SAFE EGRESS AND INGRESS FROM DRIVEWAYS DURING FLAGGING AND PILOT CAR OPERATIONS.

1101.02

STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C.

ENGLISH STANDARD DRAWING FOR TRAFFIC CONTROL DESIGN TABLES TEMPORARY BARRIER FLARE RATES

TEMPORARY BARRIER FLARE RATES

GENERAL NOTES

1. REFER TO 2002 ROADSIDE DESIGN GUIDE.

2. A BARRIER IS CONSIDERED FLARED WHEN IT IS NOT PARALLEL TO THE EDGE OF THE TRAVELWAY.

3. THE PRIMARY USE OF BARRIERS ARE FOR WORK AREA PROTECTION. WHEN SERVING THE ADDITIONAL FUNCTION OF A CHANNELIZING DEVICE, SUCH AS WHEN SHIFTING TRAFFIC, BARRIER TAPERS SHALL MEET STANDARD CHANNELIZING TAPER LENGTHS AS SHOWN ON STD. 1101.11 SHEET 1.

1101.11

STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C.

ENGLISH STANDARD DRAWING FOR STATIONARY WORK ZONE SIGNS SPLICING DETAIL

3 LB. U-CHANNEL SPLICING REQUIREMENTS

GENERAL NOTES

1. ALL TRAFFIC CONTROL DEVICES, INCLUDING BREAKAWAY SYSTEMS FOR GROUND MOUNTED SIGN SUPPORTS, COMPLY WITH ALL NCHRP REPORT 350 REQUIREMENTS AND SHALL BE APPROVED BY THE DEPARTMENT. ALL APPROVED TRAFFIC CONTROL DEVICES ARE ON THE DEPARTMENT'S WEB SITE AT: <https://apps.dot.state.nc.us/vendor/approvedproducts>.

2. INSTALL THE BREAKAWAY SYSTEM TO FUNCTION PROPERLY IN ACCORDANCE WITH THE DIRECTION OF TRAFFIC ADJACENT TO THE SIGN.

3. FOR PERFORATED SQUARE TUBING BREAKAWAY SYSTEMS, FOLLOW THE MANUFACTURER'S RECOMMENDATIONS FOR ANCHOR EMBEDMENT DEPTHS AND POST ATTACHMENT REQUIREMENTS.

4. INSTALL U-CHANNEL BREAKAWAY SYSTEMS TO THE GROUND SUPPORT (STUB) IS INSTALLED ON THE APPROACH SIDE OF TRAFFIC WHILE THE SIGN SUPPORT IS ATTACHED/SPLICED BEHIND THE GROUND SUPPORT (STUB).

5. WHEN SIGN IS REMOVED AT THE END OF PROJECT, REMOVE THE GROUND SUPPORT (STUB).

6. WHEN SPLICING A U-CHANNEL SUPPORT, INSTALL THE GROUND SUPPORT (STUB) APPROXIMATELY 36" TO 42" INTO THE GROUND WHILE LEAVING NO MORE THAN 4" ABOVE THE EXISTING GROUND ELEVATION. REMOVE EXCESS SOIL FROM AROUND THE GROUND SUPPORT (STUB) TO PERMIT ACCESS TO THE HOLES FOR THE BREAKAWAY SYSTEM. ONCE THE BREAKAWAY SYSTEM IS TIGHTENED, REPLACE THE SOIL AND TAMP.

7. OVERALL LENGTH OF THE BREAKAWAY SYSTEM IS 8'. BOLTS MUST BE 4" APART. ATTACH THE SIGN SUPPORT TO THE BACK OF THE GROUND SUPPORT (STUB) WITH THE APPROPRIATE HARDWARE SUPPLIED BY THE MANUFACTURER OF THE BREAKAWAY SYSTEM.

8. INSTALL U-CHANNEL BREAKAWAY SYSTEMS TO THE GROUND SUPPORT (STUB) IS INSTALLED ON THE APPROACH SIDE OF TRAFFIC WHILE THE SIGN SUPPORT IS ATTACHED/SPLICED BEHIND THE GROUND SUPPORT (STUB).

1110.01

STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C.

ENGLISH STANDARD DRAWING FOR STATIONARY WORK ZONE SIGNS SPLICING DETAIL

PROPOSED STREET & SIDEWALK IMPROVEMENTS FOR TOWN OF ELON

ELON, NORTH CAROLINA
BOONE STATION TOWNSHIP, ALAMANCE COUNTY, NC

alley, williams, carmen & king, inc.
ENGINEERS, ARCHITECTS & SURVEYORS

740 chapel hill road
burlington, n.c. 27215

p.o. box 1179
336/226-5534

Firm's Engineering License No. F-0203

DATE: 2/20/14
DRAWN BY: PLW
CHECKED BY: MDR

TRAFFIC CONTROL DETAILS

12158
DWC NAME: 12158DETAILS.DWG
SHEET NO. 13

1101.01



Drawn by: Mark D. Reich
586377049AD84D7...
4/21/2015

STATE OF NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

1-12

ENGLISH STANDARD DRAWING FOR
DRUM

STATE OF NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

TIRE BALLAST

GENERAL NOTES

- 1- BALLASTING SHALL BE ACHIEVED BY THE SAND RAG, TIRE SIDEWALL, OR PREFORMED WEIGHTED BEIR METHOD. USE THE TIRE BALLAST AS SPECIFIED BY THE MANUFACTURER. DO NOT PLACE BALLAST ON TOP OF THE DRUM.
- 2- IF NECESSARY PLACE THE NAME OF THE AGENCY, CONTRACTOR, OR SUPPLIER ON NON-RETROREFLECTIVE DRUM SURFACES. SHOW THE LETTERS AND NUMBERS USING A NON-RETROREFLECTIVE COLOR AND NOT OVER 2" IN HEIGHT.
- 3- USE TYPE 3 OR HIGHER HIGH INTENSITY PRISMATIC SHEETING.
- 4- SEE THE DEPARTMENT'S APPROVED PRODUCT LIST
At <https://apps.dot.state.nc.us/vendor/approvedproducts>.
- 6- REFER THE STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES FOR ADDITIONAL INFORMATION.

SHEET 1 OF 1

1130.01

SHEET 1 OF 1

1130.01

STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS HALEIGH, N.C.	1-12		1-12	STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS HALEIGH, N.C.
ENGLISH STANDARD DRAWING FOR PORTABLE WORK ZONE SIGNS MOUNTING HEIGHT & LATERAL CLEARANCE				
<div style="display: flex; justify-content: space-between;"> <div style="width: 45%;"> <p>GENERAL NOTES</p> <ol style="list-style-type: none"> DIMENSIONS SHOWN ARE MINIMUM VALUES. MOUNT SIGNS SO THEY WILL BE CLEARLY VISIBLE TO APPROACHING TRAFFIC EVEN WHEN SIGNS ARE MOUNTED BEHIND TRAFFIC CONTROL DEVICES SUCH AS GRINDS, BARRIERS, OR OTHER OBJECTS. ALL PORTABLE SIGNS AND STANDS MUST MEET OR EXCEED THE REQUIREMENTS OF NCHRP 350 FOR CATEGORY II DEVICES. USE PORTABLE WORK ZONE SIGNS AND STANDS SPECIFICALLY DESIGNED FOR ONE ANOTHER. ALL PORTABLE WORK ZONE SIGNS AND STANDS MUST BE LISTED ON THE DEPARTMENT'S APPROVED PRODUCTS LIST AT https://apps.dot.state.nc.us/vendor/approvedproducts. </div> <div style="width: 45%; text-align: right;"> <p>SHEET 1 OF 1 1110.02</p> </div> </div>				

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C.	1-12 ENGLISH STANDARD DRAWING FOR CONES	<div style="display: flex; justify-content: space-around;"> <div style="text-align: center;"> <p>28 INCH CONE</p> <p><small>(USE WHEN SETTING CONES FOR NO. 10, 12, 14, 16, 18, 20, 22, 24, 26, 28, 30, 32, 34, 36, 38, 40, 42, 44, 46, 48, 50, 52, 54, 56, 58, 60, 62, 64, 66, 68, 70, 72, 74, 76, 78, 80, 82, 84, 86, 88, 90, 92, 94, 96, 98, 100)</small></p> </div> <div style="text-align: center;"> <p>36 INCH CONE</p> <p><small>(REQUIRED FOR PRESENTS AND INTERSTATES)</small></p> </div> </div> <div style="text-align: center; margin-top: 20px;"> <p>GENERAL NOTES</p> <ol style="list-style-type: none"> 1. ACHIEVE BALLASTING BY USING SPECIAL WEIGHTED BASES SUCH AS SAND BAG RINGS, DOUBLING CONES, OR BASES THAT CAN BE FILLED WITH BALLAST. SEVENTY PERCENT OF THE WEIGHT OF THE CONES MUST BE IN THE BASE. USE BALLASTS THAT DO NOT PRESENT A HAZARD WHEN STRUCK. 2. SEE THE DEPARTMENT'S APPROVED PRODUCTS LIST AT http://www.doh.state.nc.us/hwdsr/approvedproducts. 3. USE TYPE IV OR HIGHER HIGH INTENSITY PRISMATIC SHEETING. </div>	1-12 ENGLISH STANDARD DRAWING FOR CONES STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C.
SHEET 1 OF 1 1135.01			SHEET 1 OF 1 1135.01

STATE OF NORTH CAROLINA
DEPARTMENT OF HIGHWAYS
RALEIGH, N.C.

**METRIC STANDARD DRAWING FOR
DRAINWAY DROP INLET**

STATE OF NORTH CAROLINA
DEPARTMENT OF HIGHWAYS
RALEIGH, N.C.

SHEET 1 OF 1
840.30

GENERAL NOTES:

- ALL MASONRY COMPONENTS OF THIS DRAINAGE DEVICE (EXCLUDING PIPE) ARE TO BE CONSTRUCTED WITH CLAY OR AT THE CONTRACTOR UNIT PRICE PER EACH FOR MASONRY DRAINAGE STRUCTURES.
- *AT PACE THE GRATE AND FRAME FOR THE DRAINWAY DROP INLET AT THE CONTRACT UNIT PRICE PER LINEAR FOOT FOR GRATE WITH FRAME.
- FABRICATE THE GRATE SECTION(S) TO FIT THE OPENING INDICATED IN THE PLANS.
- THE CONTRACTOR MAY, AT HIS OPTION, SHORTEN LENGTH FOR BARS 'B' AND 'A' TO OBTAIN THE PROPER LENGTH OF BARS. DO NOT MAKE BARS LESS THAN 400mm LONG.
- INCLUDE THE COST OF ALL REINFORCING STEEL IN THE CONTRACT UNIT PRICE PER EACH FOR MASONRY DRAINAGE STRUCTURES.
- DESIGN THE GRATES TO MEET HS-20 LOADING.
- PROVIDE GRATES WITH A MINIMUM CLEAR WATERWAY OPENING OF 100,000mm² PER EACH FOR MASONRY DRAINAGE STRUCTURES.
- ADDITIONAL PER LINEAR FOOT QUANTITIES MAY BE USED TO ADJUST QUANTITIES FOR LENGTH INCREASES OR DECREASES AS INDICATED BY THE PLANS (SEE CHART BELOW).

BILL OF MATERIAL

QUANTITIES BASED ON 9.0m GRATE LENGTH

BAR	NO.	SIZE	LENGTH	WEIGHT
A3	10	16	1199	31.6
A4	4	16	1910	11.8
A5	10	16	1000	28.0
A6	4	16	1260	2.8
B	7	16	3000	37.1
B3	8	16	1800	16.7
B4	5	16	860	6.7
B5	4	16	800	5.4
C	1	16	220	8.0
D	1	16	250	9.0
E	1	16	1000	25.0
F	1	16	1000	25.0
G	1	16	1000	25.0
H	1	16	1000	25.0
I	1	16	1000	25.0
J	1	16	1000	25.0
K	1	16	1000	25.0
L	1	16	1000	25.0
M	1	16	1000	25.0
N	1	16	1000	25.0
O	1	16	1000	25.0
P	1	16	1000	25.0
Q	1	16	1000	25.0
R	1	16	1000	25.0
S	1	16	1000	25.0
T	1	16	1000	25.0
U	1	16	1000	25.0
V	1	16	1000	25.0
W	1	16	1000	25.0
X	1	16	1000	25.0
Y	1	16	1000	25.0
Z	1	16	1000	25.0

PER LINEAR METER WEIGHT ADJUSTMENTS FOR DRAINAGE STRUCTURES DEVIATING FROM THE 9.0m GRATE LENGTH

BAR	NO.	SIZE	LENGTH	WEIGHT
A3	10	16	1199	5.8
A4	4	16	1910	10.9
A5	10	16	1000	10.9
A6	4	16	1260	0.9

SHEET 1 OF 1
840.30

STATE OF NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

ENGLISH STANDARD DRAWING FOR
FLAGGERS

STATE OF NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS

1-12

STOP/SLOW PADDLE

FLAGGER AND PADDLE PLACEMENT

STOP:
LEADING WHITE REFLECTORIZED
BORDER WITH REFLECTORIZED
BACKGROUND-ORANGE REFLECTORIZED

SLOW:
LEADING BLACK REFLECTORIZED
BORDER AND BLACK REFLECTORIZED
BACKGROUND-ORANGE REFLECTORIZED

NOTE: FOR OPERATIONS THAT ARE RESTRICTED FROM DUE TO DAWN ONLY,
USE REFLECTORIZED LEADING, BORDERS AND BACKGROUNDS.

1-12

GENERAL NOTES

- 1: USE HAND SIGNALING DEVICES SUCH AS STOP-SLOW PADDLES, FLASHLIGHTS TO CONTROL TRAFFIC.
USE STOP-SLOW PADDLES AS THE PRIMARY DEVICE.
- 2: FABRICATE STOP-SLOW PADDLES FROM SHEET METAL OR OTHER LIGHT RIGID MATERIAL.
PROVIDE A RIGID HANDLE OF SUFFICIENT LENGTH SO THE PADDLE IS HELD AT 7 FEET ABOVE GROUND LEVEL.
- 3: PROVIDE STOPPING SIGHT DISTANCE TO EACH FLAGGER STATION (REFER TO STD. 1101.11 SHEET 2).
- 4: ILLUMINATE FLAGGER STATIONS DURING NIGHT OPERATIONS.
- 5: FOLLOW FLAGGER QUALIFICATIONS AND METHODS OF HAND-SIGNALING PROCEDURES IN ACCORDANCE WITH PART VI OF THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES.
- 6: ALL FLAGGERS MUST BE CERTIFIED BY AN NCDOT APPROVED SOURCE.

1-12

ENGLISH STANDARD DRAWING FOR
FLAGGING DEVICES

1-12

SHEET 1 OF 1

1150.01

SHEET 1 OF 1

TYPE 1

TYPE 2A

PAY LIMITS FOR CURB RAMP


REFER TO ROADWAY STANDARD DRAWING NUMBER 648.6 SHEET 3 OF 3 FOR ALL RAMP NOTES

CONTRACT STANDARDS AND DEVELOPMENT UNIT
Office 919-707-6850 FAX 919-250-
CURB RAMPS
Parallel Ramps
ORIGINAL BY: J.S. HOBERTON DATE: 1/77
MODIFIED BY: DATE: 1/77
CHECKED BY: DATE: 1/77
FILE: 250-316/2012/CURB/STANDARD

PROPOSED STREET & SIDEWALK IMPROVEMENTS FOR
TOWN OF ELON
ELON, NORTH CAROLINA
BOONE STATION TOWNSHIP, ALAMANCE COUNTY, NC
alley, williams, carmen & king, inc.
ENGINEERS, ARCHITECTS & SURVEYORS
740 chapel hill road p.o. box 11
burlington, n.c. 27215 336/226-5511

DocuSign by:

NORTH CAROLINA PROFESSIONAL SEAL 12634

<p>① 8.33% (12:1) MAX RAMP SLOPE</p> <p>② CROSS SLOPE: 2.00%</p> <p>③ CURB RAMPS REQUIRE A (4'-0") MINIMUM LANDING WITH A MAXIMUM CROSS SLOPE AND LONGITUDINAL SLOPE OF 2.00% WHERE PEDESTRIANS PERFORM TURNING MANEUVERS. SLOPE TO DRAIN TO CURB.</p>	<p>PROPOSED STREET & SIDEWALK IMPROVEMENTS FOR</p> <h1>TOWN OF ELON</h1> <p>ELON, NORTH CAROLINA BOONE STATION TOWNSHIP, ALAMANCE COUNTY, NC</p> <p>alley, williams, carmen & king, inc. ENGINEERS, ARCHITECTS & SURVEYORS</p> <p>740 chapel hill road p.o. box 11 burlington, n.c. 27215 336/226-5555</p> <p>Firm's Engineering License No. F-0203</p>				
 <p>DocuSigned by: <i>Mark D. Reich</i> 58837048ACB4D7... 4/21/2015</p>	<table border="1"> <tr> <td> <p>DATE: 2/20/14</p> <p>DRAWN BY: PLW</p> <p>CHECKED BY: MDR</p> </td> <td> <p>TRAFFIC CONTROL & CONSTRUCTION DETAILS</p> </td> </tr> <tr> <td> <p>REVISION: 5/01/14 - NCDOT COMMENTS REVISED: 3/27/15 - ADDED TYPE 2A CURB RAMP DETAIL REVISED: 4/16/15 - RELEASED FOR CONSTRUCTION</p> </td> <td> <p>JOB NO. 12158 DWG NUMBER: 12158/DETAILS SHEET NO. 14</p> </td> </tr> </table>	<p>DATE: 2/20/14</p> <p>DRAWN BY: PLW</p> <p>CHECKED BY: MDR</p>	<p>TRAFFIC CONTROL & CONSTRUCTION DETAILS</p>	<p>REVISION: 5/01/14 - NCDOT COMMENTS REVISED: 3/27/15 - ADDED TYPE 2A CURB RAMP DETAIL REVISED: 4/16/15 - RELEASED FOR CONSTRUCTION</p>	<p>JOB NO. 12158 DWG NUMBER: 12158/DETAILS SHEET NO. 14</p>
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